Computational Thinking

Class 3

Teacher Handbook

CENTRAL BOARD OF SECONDARY EDUCATION

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PREFACE

The National Education Policy (NEP) aims to position India as a leader in emerging knowledge fields by integrating technologies like AI, Machine Learning, Big Data, and Computational Thinking into school education. It promotes technology-enabled, interactive, and gamified learning using tools such as Augmented Reality (AR), Virtual Reality (VR), and virtual labs to foster creativity, problem-solving, and interdisciplinary exploration. NCFSE 23 carries this recommendation further for implementation.

While Artificial Intelligence (AI) is an important requirement, Computational Thinking (CT) should be a broader skill, developing a foundation for learning AI. It can cover various aspects like Cybersecurity, basic network, etc. Hence, CBSE approaches this by integrating Computational Thinking with AI and other technological advancements, without dependence on any platform.

The book introduces foundational Computational Thinking skills through simple, visual, and observation-based problems involving numbers, shapes, pictures, and everyday situations. It focuses on recognising basic patterns, understanding simple sequences, identifying similarities and differences, and following step-by-step instructions. The document also provides age-appropriate pedagogical approaches, learning resources, assessment support, and classroom implementation guidelines to ensure joyful, inclusive, and skill-based learning, in alignment with NEP 2020.

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Introduction

Computational Thinking (CT) is a problem-solving approach that comprises Decomposition, Pattern Recognition, Abstraction, Algorithm Design, Data Analysis and Troubleshooting. Computational Thinking Skills involve solving complex problems that promote thinking skills such as critical & creative thinking, abstraction and pattern recognition, as well as algorithmic thinking. Problem identification and problem solving necessitate application of multidisciplinary understanding for creating effective solutions.

Artificial intelligence (AI) is a cutting-edge technology that empowers machines and computers to perform tasks that usually require mimicking human intelligence. These machines can perform complex thinking processes such as data analysis, pattern recognition, prediction of trends, solving problems and decision making. Thus, AI involves simulating cognitive processes associated with human intelligence and is widely applicable in various sectors such as banking, healthcare, defense, education, entertainment, agriculture and others for processing information, solving intricate problems and for planning.

The National Education Policy (NEP) aims for India to emerge as a global leader in new emerging knowledge domains such as artificial intelligence, machine learning, data analytics, 3-D machining etc. To realise this goal, the policy suggests teaching students Mathematics and Computational Thinking, along with new subjects like Artificial Intelligence, Machine Learning, and Data Science during their school education. The policy also focuses on technology-enabled learning and classrooms by using tools like artificial intelligence, machine learning, and adaptive testing to create knowledge.

The National Curriculum for School Education draws from this policy aspiration and emphasizes the need to introduce these emerging domains of study and technologies in the school curriculum. It recommends inclusion of subjects such as design thinking, augmented reality, virtual reality, artificial intelligence, and computational thinking. Additionally, it promotes the use of gamified content, interactive content, and immersive experiences (such as AR, VR, or virtual labs) to enhance student learning. In a variety of subjects, including design, music, art, and sciences, these resources support students in knowledge creation and exploration, and development of capacities such as problem-solving, critical and creative thinking.

CBSE under the aegis of the Department of School Education and Literacy, Ministry of Education, Govt. of India, is implementing a Curriculum on Computational Thinking and Artificial Intelligence (CT &AI) to inculcate AI-readiness in school students. This curriculum will be implemented from classes 3rd to 8th, in the session 2026-27, and aims to develop AI-Ready learners, by focusing on Computational Thinking Skills. The AI-readiness, so inculcated through CT Skills, will help develop the capacities of learners to use computational thinking, such as logical thinking, problem solving, pattern recognition, and so on, and understand the role and use of Artificial Intelligence in daily life. The Curriculum aims to build strong foundations in computational thinking, digital literacy, and responsible use of technology, along with nurturing innovation, critical thinking, and ethical decision-making capacities.

1. Relevance: Importance of Introducing Computational Thinking (CT)

Introducing Computational Thinking at the Grade 3 level is essential as it serves as the **intellectual backbone** for future digital literacy and AI readiness.

- **Foundation for AI:** CT develops the reasoning processes—such as breaking problems into parts and spotting patterns—that power modern technology and Artificial Intelligence
- **Cognitive Development:** It fosters essential human capacities, including logical thinking, problem-solving, pattern recognition, and ethical decision-making
- **Real-World Application:** It equips students to approach daily-life challenges systematically, transforming them into informed and creative digital citizens

2. Objectives (Curricular Goals)

For the Preparatory Stage (Classes 3–5), the curriculum defines three primary curricular goals:

- **CG-1:** Develop basic problem-solving skills with procedural fluency to solve daily-life problems as a step toward formal computational thinking
- **CG-2:** Develop basic capacities of analytical thinking, verbal, and visual reasoning.
- **CG-3:** Demonstrate understanding of basic concepts of computers and knowledge of hardware and software.

3. Learning Outcomes

ABSTRACT THINKING

Students will be able to solve problems with hidden or unseen ideas, using:

- Different viewpoints of 3D objects
- Changes in shapes after flips, turns, folds, or rotations
- Hidden or missing parts in incomplete shapes or patterns

PATTERN RECOGNITION

Students will be able to identify simple patterns involving 1 or 2 changes in consecutive terms, formed using:

- Numbers
- Shapes or images
- Letters
- Or a mix of the above

DECOMPOSITION

Students will be able to break down problems involving 2–3 clues, using information from:

- Number clues or number names
- 3D objects and their parts (faces, edges, corners)
- Step-by-step exchanges or transfers (money, objects, digits)
- Tables or charts with multiple pieces of information

ALGORITHMIC THINKING

Students will be able to follow clear step-by-step rules to solve problems involving:

- Number sequences formed using simple operations
- Movements on grids or direction-based paths
- Events arranged using before/after/in-between clues

- Values that increase or decrease across steps
- Multi-step instructions involving moves, changes, or transfers

4. Mapped with NEP and NCF 2023

The curriculum is directly aligned with the vision of the **National Education Policy (NEP) 2020** and the **National Curriculum Framework for School Education (NCF-SE) 2023**.

- **Integrated Learning:** Following NCF-SE guidelines, CT is not treated as an isolated subject but is integrated into Mathematics and "The World Around Us" (TWAU) to promote a multidisciplinary understanding
- **Competency-Based:** The learning standards are derived from the Aims of School Education defined in the NCF, moving from general capacities to specific classroom learning outcomes

5. Time Allocation

- **Annual Hours:** A total of 50 hours annually is suggested for the Preparatory Stage (Classes 3–5)
- **Integration:** This time is embedded within the existing periods for Mathematics and TWAU to ensure students are not overburdened with additional content load

6. Approach / Pedagogy

The pedagogical approach for Grade 3 is designed to be playful and experiential:

- **Activity-Based:** Learning is driven by fun math games, puzzles, and hands-on exercises rather than rote memorization
- **Resource Integration:** Teachers use specialized CT workbooks and resource books that add CT-focused questions to existing chapters in the standard textbooks
- **Collaborative Learning:** The curriculum encourages peer discussions and group tasks to solve problems organized through worksheets

7. Assessment

Assessment for Grade 3 shifts away from traditional testing toward continuous and formative methods:

- **Specific Tools:** Assessment methods include written tests involving puzzles, interactive group activities, and the use of a Teacher Observation Journal to track student progress
- **Focus:** The goal is to assess the student's ability to apply knowledge and think creatively rather than their ability to recall facts

How to Use This Book?

This book is designed as a companion to the Mathematics textbook and is intended to be used alongside regular classroom teaching. Since it follows the same chapter sequence, the Mathematics teacher can seamlessly integrate it into daily instruction. As concepts are introduced in class, the corresponding questions from this book can be used to deepen understanding and encourage application.

Before beginning a chapter, the teacher is encouraged to go through the content of this book, identify the underlying concepts required for each question, and plan how to align them with classroom teaching. As these concepts are taught, the teacher can introduce the related thinking questions to students.

It is important to note that the questions in this book are thinking-based and designed to promote analysis, reasoning, and problem-solving. Teachers should adopt a facilitative approach, guiding students through prompts and discussions rather than directly providing solutions. Students should be given time to think and attempt independently, followed by classroom discussions where different approaches are shared and explored.

Some chapters also include activities that build intuition and engagement. These should be conducted before attempting the questions, as they help students approach the problems with better understanding.

Teachers should approach this book with the mindset that the process of thinking is more important than arriving at the correct answer. Creating a safe and encouraging environment where students feel comfortable making mistakes, exploring multiple strategies, and expressing their reasoning is essential. The goal is to nurture confident, independent thinkers rather than focus solely on correctness.

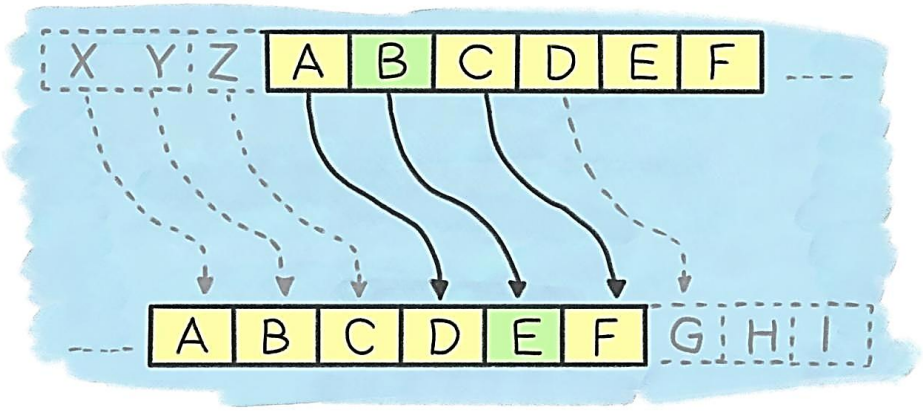
Chapter 1: What's in a Name?

Activity Time

Activity: Caesar Cipher

Introduction

The need for secrecy when sending messages over the Internet is important for everyone. With this activity, students are introduced to the concept of basic cryptography/encryption, and to simple techniques for writing encrypted messages. Here, we will understand the Caesar cipher, use it to encrypt and decrypt a message. This activity is a very simple form of encryption used by Julius Caesar in the 1st century BCE.



Activity	Time	Description
Launch	5 min	Start by asking students if they have ever shared a secret message with a friend. Ask questions like: How did you make sure others could not understand it? or Did you ever use a code or secret language? The teacher can even write a sentence on the board, which is encrypted, and a student has to guess the message. Tell students how long ago people also needed to send secret messages. Introduce the idea that even today, computers hide information using special codes to keep messages safe on the Internet. Explain that in this activity they will learn a simple way of hiding messages using a tool called the Caesar Cipher, and they will even make their own Caesar Cipher to send secret messages to their friends. Template: Caesar Cipher.pdf
Making & exploration of Caesar Cipher by Students	20 min	Give students the alphabet shifting table question. Making of Caesar Cipher Model and Student's Try out the activity with each other following worksheet questions. Student Worksheet:

		https://docs.google.com/document/d/1IRtpBWDWp6yOUiRzpIGsbrlHZtGWFUkhOiPwRpv7-Co/edit?usp=sharing
Discussions & Conclusion	10 min	Discussing the worksheets. Students learned how to hide messages using a simple rule of shifting letters. They also discovered that while this method works, it is not very strong because there are only a few possible shifts. This shows why stronger encryption methods are needed to keep information safe today.

CT Components

Algorithmic Thinking
We follow step-by-step process to encrypt and decrypt messages—choose a shift, match letters on the cipher wheel, and write the encoded letters.

Decomposition
We break the task of sending a secret message into smaller steps: choosing a message, deciding the shift, encoding each letter, and decoding it later.

Pattern Recognition
We can observe how letters consistently move forward in the alphabet by the same number of positions. By noticing this repeating pattern, they can quickly understand how the cipher works and even guess the shift used.

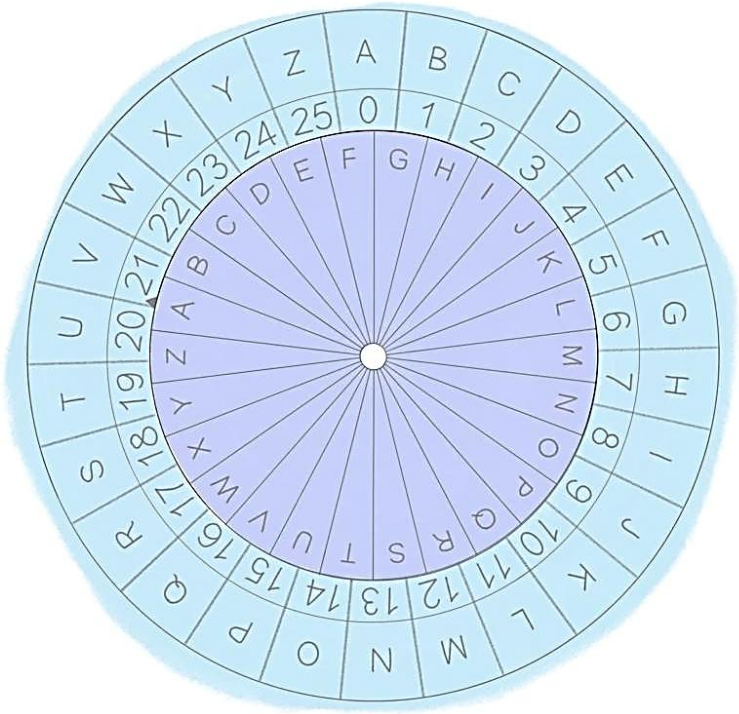
Generalisation
By trying different shift values (1, 2, 3, etc.), we can notice that the same rule works for any message or shift.

Evaluation
We can think about how secure the Caesar Cipher really is by exploring that there are only 25 possible shifts. This helps us to understand that some methods work but may not always be strong enough for real security.

Activity: Caesar Cipher

People have used secret messages for centuries to protect important information. Even today, much of our communication online needs to be encrypted to keep our private data safe. For example, when your parents withdraw money from an ATM or make a UPI payment, they enter a PIN. This number needs to be hidden so that no one else can take their money, or when your parents buy something online and enter their bank card details, the information needs to be protected so others cannot see or steal it.

A secret is information shared only with someone you completely trust through a message. Encryption is the process of changing a message so that its original meaning is hidden from anyone except the intended receiver. Though today we use sophisticated methods to encrypt information, here we will understand encryption using a simple activity.



One simple way to do this is through ciphers. Cipher scrambles up the message using a **key**. For you to unscramble and access the message, you must have the key. This way the cipher protects your message from those who do not have the key.

A well-known example of cipher is the **Caesar Cipher**, named after the Roman leader Julius Caesar. He used this method to send important messages securely. In the Caesar Cipher, the letters of the alphabet are shifted by a certain number of places to be replaced by a new alphabet.

For example, if the alphabet is shifted one place, A becomes B, B becomes C, and so on, while Z comes around to become A. This simple shifting method allows messages to be hidden from anyone who does not know the key, the shift number.

1. **Complete the table below by shifting the alphabet.**

Original Placement	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Shift 1 place																										
Shift 2 place																										
Shift 20 place																										

Answer:

Original Placement	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Shift 1 place	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A
Shift 2 place	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B
Shift 20 place	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T

CT Competency:

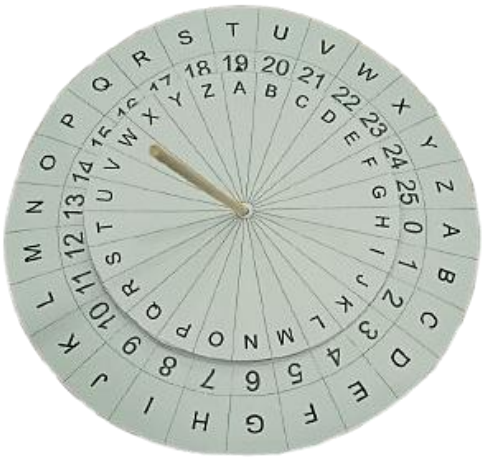
Algorithmic Thinking

Pattern Recognition

Making of Caesar Cipher

Print out the template file on A4 Paper for each student.
(Guide Students to Make Caesar Cipher)

Cut out both the two circles, and carefully cut out the arrow on the smaller circle; it will help as an indicator. Put a toothpick or a thin stick through the centre of the two circles, with the smaller one on top of the larger one. Make sure that the small circle is free to rotate over the bigger circle.



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2. **If the message "CAESAR CIPHER" is encoded with a shift of 3 places, which of the following is the correct encoded message?**

a) ECGUCT EKRJGT b) FDHVDU FLSKHU c) GEIWEV GMTLIV d) DBFTBS DJQIFS

Answer: b

Solution:

Each letter in the message is shifted in the alphabet by a fixed number of positions.
Here, the shift is **3**: C - F, A - D, E - H, S - V, A - D, R - U
So, CAESAR - FDHVDU, Similarly, CIPHER - FLSKHU

CT Competency:

Algorithmic Thinking

Decomposition

Generalisation

Pattern Recognition

Activity: Encrypting messages through Caesar Cipher

Make groups of two students. Once the students make the Caesar Cipher, tell them to write a message, encrypt it, and give it to their friends.

Choose a short message, like your name, your school name or the food item in your lunchbox that you would like to give to your friend, and decide on a number that will represent the shift. To use the cipher, first align the 'A' on the smaller circle with 'A' on the bigger circle. Now, turn the smaller circle such that the arrow lies on the chosen shift number.

Now, to encode (encrypt) your message, look for each letter of your message on the smaller circle, and write down the matching letter from the bigger circle. Do this one letter at a time until the entire message is encoded.

Once you have finished encoding your message, give your friend the encoded message and the shift letter (key). To decode (decrypt) the message, your friend should rotate the smaller circle so that the arrow matches the given key. Then your friend finds each letter of the encrypted message from the bigger circle and writes the corresponding letter on the smaller circle to reveal the original message.

---

3. If the message "THIS MESSAGE IS HIDDEN" is encoded as "ESTD XPDDLRP TD STOOPY", by how many positions has the alphabet been shifted?

a) 5 b) 11 c) 17 d) 7

Answer: b

Solution:

To find the shift, compare a letter from the original message to the corresponding letter in the encoded message. T - E, Moving 11 places from T in the alphabet comes around to E.
Similarly, H - S, I - T, S - D. Each letter is shifted by 11 positions, confirming that the shift used here is 11.

CT Competency:

Algorithmic Thinking

Decomposition

Generalisation

Pattern Recognition

4. **How many possible meaningful ways are there to shift the alphabet in a Caesar cipher?**

a) 26 b) 52 c) 25 d) 50

Answer: c

Solution:

We can shift letters by a certain number of positions, determined by the number of letters in the alphabet. The English alphabet has 26 letters. But a shift of 26 would bring A to itself, leaving the message unchanged. Therefore, only shifts from 1 to 25 produce encoded messages. So, there are 25 possible meaningful shifts.

CT Competency:

Generalisation

Evaluation

Think about how secure the Caesar Cipher really is by exploring that there are only a few possible shifts. This helps to understand that some methods work, but may not always be strong enough for real security. This may work for your secret messages to your friends, but not for your parents' bank transactions.

Questions

1. **Find the largest number name that is hidden in the series given below.**
   Note: *The letters in the number name should appear together as continuous letters*
   FORHLKJLTEMELEVENDSKLFOURSDGSTWENTYSJLSIXTKSEVENL
   a) 60 b) 6 c) 20 d) 70
   Answer: c
   Solution:
   If we arrange the given number names in descending order, we get: 70 > 60 > 20 > 6.
   Among these, the numbers 70 and 60 are not present in the given series, while 20 and 6 are present.
   Since the question asks for the **largest** number, and 20 is greater than 6, **option c** is the correct answer.
   FORHLKJLTEMELEVENDSKLFOURSDGSTWENTYSJLSIXTKSEVENL

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2. **Roy's favourite number has:**
   - **3 letters in its name**
   - **The number of vowels is double the number of consonants in its name**

   What is Roy's favourite number?
   a) 2 b) 6 c) 10 d) 1
   Answer: d
   Solution:
   The options given are TWO, SIX, TEN, and ONE.
   Option d satisfies both the given conditions.

   The word ONE has 3 letters in its spelling.

   It contains 2 vowels (O, E) and 1 consonant (N), meaning the number of vowels is double the number of consonants.

   Hence, option d is the correct answer.

---

3. **If each of the given boxes follows the same theme, what will come in place of "?"**

   a) NINE3 b) THREE9 c) THREE3 d) 9THREE
   Answer: b
   Solution:
   Each term has a number written in a black circle and a white circle. Below the circles, these two numbers are presented in a specific format:
   The number in the black circle is written first, followed by the number in the white circle.
   The number in the black circle is represented in word form, while the number in the white circle is presented in numeral form.
   Therefore, following this logic, option b is the correct answer.

4. If each of the following terms follows the same theme, what will come in place of "?"

One-3 → 1 2 3	Six-4 → 6 7 8 9
Three-5 → 3 4 5 6 7	Four-3 → ?

a) 4 5 6 7

b) 3 4 5

c) 4 5 6

d) 3 4 5 6

Answer: c

Solution:

Each term has two numbers written before the arrow: one in number name format and the other as a digit. The series starts with the number given in number name format, and the length of the series is determined by the value of the digit.

For the last term, "Four-3," the series starts at 4 and contains 3 digits. So, the answer is 4 5 6.

Hence, the correct answer is option c.

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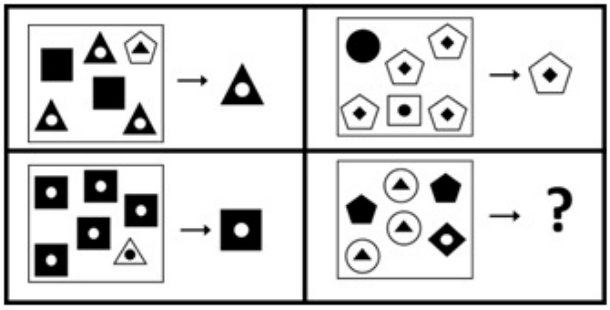
5. If each of the following terms follows the same theme, what will come in place of "?"



a) 

b) 

c) 

d) 

Answer: a

Solution:

In each term, the shape that appears the most times in the box (before the arrow) is shown after the arrow. Following this logic, the shape in option a appears the most frequently in the question term.

Therefore, option a is the correct answer.

---

6. Find the odd one out.

a) 

b) 

c) 

d) 

Answer: b

Solution:

Options a, c, and d represent road transport, while option b represents air transport. Hence, the correct answer is option b.

7. **Which of the following number names given in the options will come second if arranged in dictionary order of their names?**

a) 5 b) 6 c) 8 d) 9

Answer: a

Solution:

a) 5: FIVE b) 6: SIX c) 8: EIGHT d) 9: NINE

Arranging in dictionary order: EIGHT, FIVE, NINE, SIX

So, 5 will come second. Hence, the correct answer is option a.

---

8. **Each shape has a letter in it. Spelling (or Name) of which of the following numbers, given in the options can be formed by combining the letters in the circles only?**

a) 1 b) 5 c) 9 d) 6

Answer: c

Solution:

Option c - NINE can be formed.

Hence, the correct answer is option c.

---

9. **Spelling of which of the following numbers given in the options is present in the group of letters given below?**

Note: *The letters of the name should appear in the same order as in the word*

TWLVETOWELEVENSVENTHREEIFEIHGT

a) 2 b) 7 c) 3 d) 8

Answer: c

Solution:

In the given options only the spelling of number 3 is present in the group of letters given below:

TWLVETOWELEVENSVENTHREEIFEIHGT

Hence, the correct answer is option c.

10. Which of the following numbers CANNOT be spelt using the letters present in the image given below?

Note: *If a letter appears in the image, it can be repeatedly used any number of times to spell the number name*

a) 50 b) 30 c) 85 d) 11

Answer: d

Solution:

Letters present in the image: G, Y, F, T, L, R, V, H, I, E

Check each option (by spelling the number name):

- 50 - F I F T Y - all letters present
- 30 - T H I R T Y - all letters present
- 85 - E I G H T Y F I V E - all letters present
- 11 - E L E V E N - N is required but N is not present in the question image

So, eleven (11) cannot be formed. Thus, option d is the correct answer.

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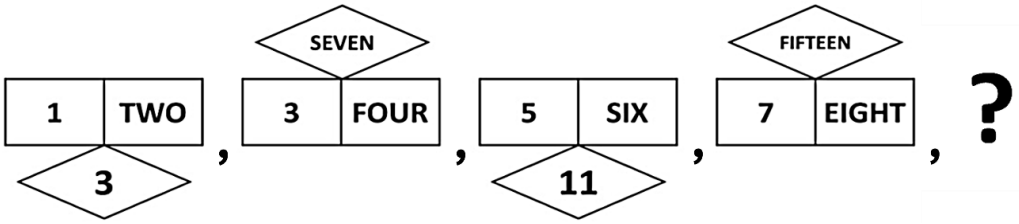
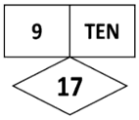
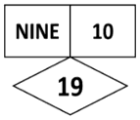
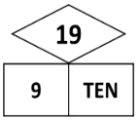
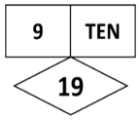
11. What will come in place of "?" in the given series?



a) 

b) 

c) 

d) 

Answer: d

Solution:

There are three repeating rules in the series:

The rectangles follow a consecutive number pattern (1, 2, 3, 4…) where numbers and number names alternate.

The diamond shows the sum of the two values in the rectangles, written alternately as a number and as a number name.
The diamond's position alternates. It appears below the rectangles in one term and above them in the next.

Applying these rules to the next (fifth) term:

- The rectangles continue the sequence: after 7 and EIGHT, the next pair is 9 and TEN
- Their sum is 9 + 10 = 19. Since the previous diamond showed a number name (FIFTEEN), this one should show the number 19
- The diamond should now appear below the rectangles

Hence, the final layout is 9 and TEN with 19 in the diamond below.

Thus, option d is the correct answer.

---

12. If you were to write the numbers given below in words, spelling of which of them would have exactly one vowel in it?

a) 1 b) 2 c) 5 d) 9

Answer: b

Solution:
When we write the numbers in words:

a) 1 (ONE)
Vowels: O, E - 2 vowels

b) 2 (TWO)
Vowels: O - 1 vowel

c) 5 (FIVE)
Vowels: I, E - 2 vowels

d) 9 (NINE)
Vowels: I, E - 2 vowels

Only TWO has exactly one vowel. So, the correct answer is option b.

---

13. X is a single digit number. If X has exactly five letters in its spelling, how many different values can X possibly have?
Note: *If a letter is repeated in the spelling of X, it has to be counted as many times as it appears in the spelling. For example, the word "NINE" has 4 letters and not 3 letters*

a) 1 b) 2 c) 3 d) 4

Answer: c

Solution:
There are 10 single digit numbers from 0 to 9. Out of these numbers, only 3 (THREE), 7 (SEVEN), and 8 (EIGHT) have exactly five letters in their spelling. Hence, the correct answer is option c.

The Thinking Spot

Raj, Aryan, and Rahul went to a movie on different days.
Raj did not go to the movie on Monday, Wednesday, or Thursday.
Aryan went to the movie on Friday, and Rahul went to the movie on Sunday.
Which of the following days could Raj have gone to the movie?

(a) Thursday

(b) Tuesday

(c) Saturday

(d) Either Tuesday or Saturday

Answer: d

Solution:

Raj did not go to the movie on Monday, Wednesday, or Thursday.

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Raj		✗		✗	✗		
Aryan							
Rahul							

Aryan went to the movie on Friday, and Rahul went to the movie on Sunday.

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Raj		✗		✗	✗		
Aryan						✓	
Rahul	✓						

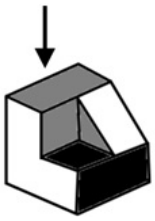
The remaining days for Raj to go to the movie are Tuesday and Saturday.

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Raj		✗		✗	✗		
Aryan						✓	
Rahul	✓						

Hence, the correct answer is option d.

Chapter 2: Toy Joy

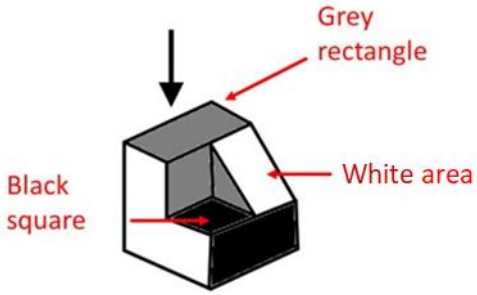
1. Which of the following options represents the top view of the object given below?



a)  b)  c)  d) 

Answer: d

Solution:
To solve the question without errors it is important to logically approach the question. When viewed from the top, a grey rectangle is visible. This rules out options a and c. Additionally, a white and a black area will be visible. This leads to the conclusion that option d is the top view of the object given.



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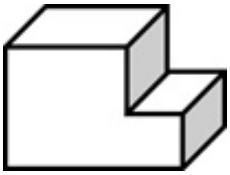
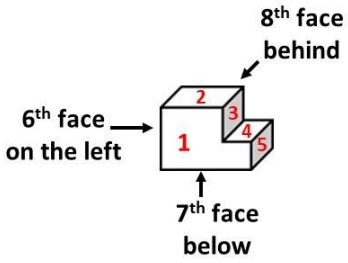
2. Count the number of surfaces (faces) in the given solid.



a) 6 b) 7 c) 8 d) 9

Answer: c

Solution:
There are 5 faces visible from the front. The 6th face is on the left-side of the solid, the 7th face is on the bottom of the solid and the 8th face is on the back-side of the solid. Hence, there are 8 faces and option c is correct.



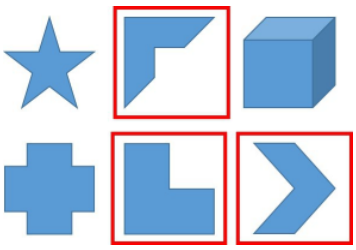
3. **The given shapes are to be placed in the buckets. Shapes with a number of edges greater than 5 are kept in a yellow bucket while the others are kept in the white bucket. Out of the shapes in the yellow bucket, how many have EXACTLY 6 edges?**

a) 2 b) 3 c) 4 d) 5

Answer: b

Solution:

There are a total of 6 shapes in the yellow bucket, out of which only 3 shapes have exactly 6 edges.

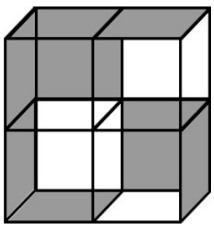


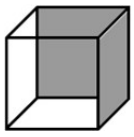
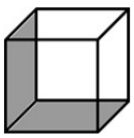
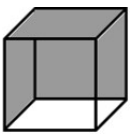
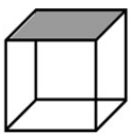
Hence, the correct answer is option b.

---

4. **Given below is a large box consisting of four smaller transparent boxes with some sides coloured. Which of the boxes shown in the options is not a part of the larger box in the question image?**

Note: *Rotation of option images is not allowed*

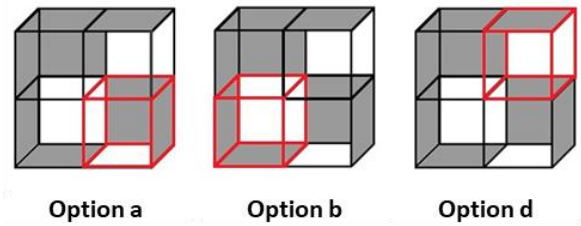


a)  b)  c)  d) 

Answer: c

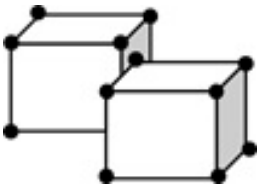
Solution:

As shown in the image below, options a, b, and d are part of the larger box. Option c is not, as there is no box with the top, back, and left sides coloured grey.



Hence, the correct answer is option c.

5. If there is a dot on each corner of the cubes below, then how many dots are hidden?



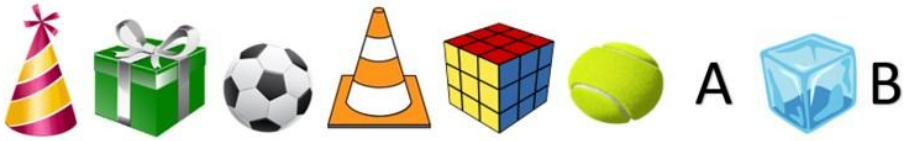
a) 3 b) 4 c) 5 d) 6

Answer: b

Solution:
Looking at the question logically, considering that each corner has a dot, and since there are 2 cubes (with a total of 8 corners each), there should be a total of 16 dots. However, only 12 dots are visible, indicating that there are 4 dots hidden. Hence, the correct answer is option b.

---

6. What will come in place of 'A' and 'B'?



a) A = B =

b) A = B =

c) A = B =

d) A = B =

Answer: c

Solution:
The sequence is a repeating sequence of 3 differently shaped objects: Cone, Cube, Sphere. Thus, the conical object will replace A and spherical object will replace B.
Thus, option c is the correct answer.

---

7. Find the odd one out.

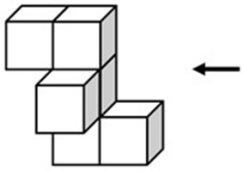
a) b) c) d)

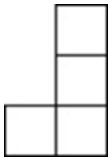
Answer: b

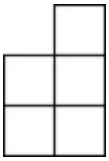
Solution:
In all the boxes except the box in option b, the 2D figure shows the top view of the 3D figure in the same box. In box b, the 2D figure (triangle) is not the top view of the 3D figure (cone).
Hence, option b is the odd one out.

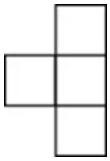
8. **If the given solid is viewed from the direction of the arrow, what will it look like?**

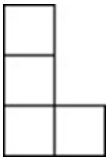
Note: *You cannot rotate the question or option images*



a) 

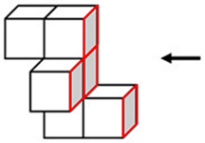
b) 

c) 

d) 

Answer: c

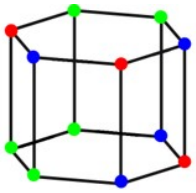
Solution:



From the side view, four blocks are visible. In this view, three blocks are stacked vertically, and the fourth block extends outward towards left, from the middle block. Hence, the correct side view is option c.

---

9. **How many edges of the solid shown below have the same-coloured dots on both of their corners?**

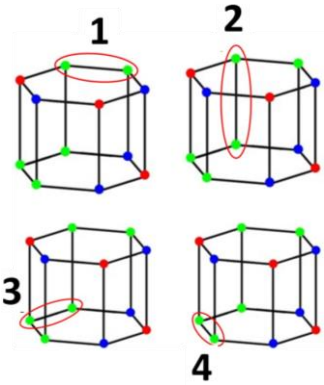


a) 2 b) 3 c) 4 d) 5

Answer: c

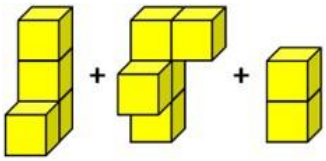
Solution:

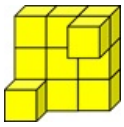
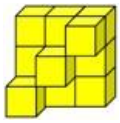
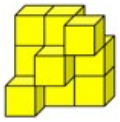
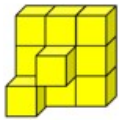
As shown below, there are 4 such edges of the solid that have the same-coloured dots on both of their corners.



Thus, option c is the correct answer.

10. Which of the following options can be formed by combining the shapes given below?



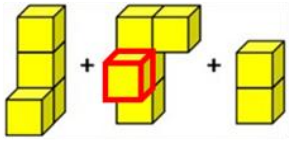
a)  b)  c)  d) 

Answer: d

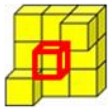
Solution:

When the 1st and 2nd shapes are combined, the resulting shape looks as shown below. This combined shape is found in options b and d.

As highlighted below, in option a, the middle block is missing,

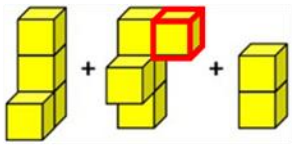


Question Image

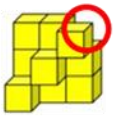


Option a

While in option c, the third block in the first row is missing.

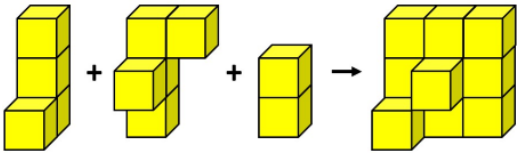


Question Image



Option c

By adding the 3rd figure, the resulting image looks as shown below, which matches option d.



Hence, the correct answer is option d.

The Thinking Spot

Two friends A and B play a game of tennis with 5 sets. No set can end in a draw. Anyone who wins 3 or more sets will win the game. A won set 1, B won sets 2 and 3. If B did not lose any EVEN NUMBERED set, who won the tennis game?

(a) A

(b) B

(c) Game ended in a tie

(d) Cannot be Determined

Answer: b

Solution:

B won sets 2 and 3.

B also won set 4 because B won all even numbered sets

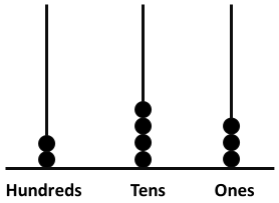
(B did not lose any even numbered set and no set was drawn)

Therefore, B won 3 out of 5 sets. Therefore, B won the game.

Thus, option b is the correct answer.

Chapter 3: Double Century

1. At minimum, how many more beads are required to show number 496 on the given abacus?



a) 487 b) 253 c) 10 d) 11

Answer: c

Solution:
The given abacus shows:

- Hundreds place: 2 beads - 200
- Tens place: 4 beads - 40
- Ones place: 3 beads - 3

So, the number shown is 243.

We need to make 496.
Now, let's find the difference between the two numbers:
496 − 243 = 253

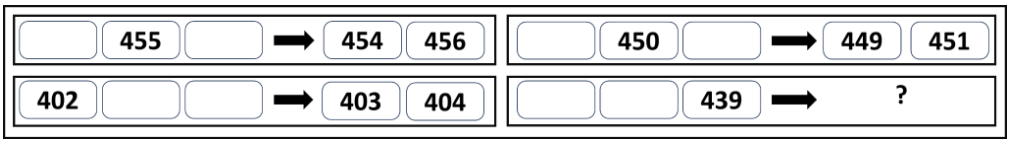
This means we need 2 more hundreds, 5 more tens, and 3 more ones, i.e.,
2 + 5 + 3 = 10 more beads in total.

Hence, 10 more beads are required to show the number 496.

Hence, the correct answer is option c.

---

2. If each of the following terms follows the same theme, what will come in place of "?"



a) 438 440 b) 440 441

c) 438 437 d) 437 438

Answer: d

Solution:

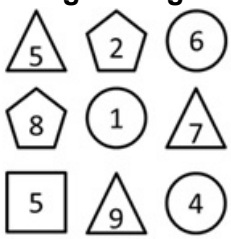
In each term, a consecutive three-number series is followed. Before the arrow, one number from the series is given, and after the arrow, the missing numbers are filled in according to their correct positions.

For example, in the first term, we have "__ 455 __". So, after the arrow, the missing numbers "454" and "456" are placed.

Similarly, in the fourth term, we have "__ __ 439". So, after the arrow, the missing numbers "437" and "438" will be placed. Hence, the correct answer is option d.

---

3. Each shape has a digit in it. Which of the following numbers in the options can be formed by using the digits in the CIRCLES only?

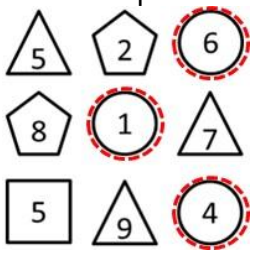


a) 615 b) 142 c) 467 d) 146

Answer: d

Solution:

The digits inside the circles are 6, 1, and 4. Using these digits, the number 146 can be formed, which matches option d.



Thus, option d is the correct answer.

---

4. How many numbers will remain after Sam cancels all numbers less than 432 and all numbers greater than 567 in the set given below?

451, 430, 568, 411, 392, 517, 533, 578, 420, 525, 566, 616, 571, 436

a) 5 b) 6 c) 7 d) 8

Answer: b

Solution:

A systematic approach to avoid mistakes:

Step 1: Remove all the numbers less than 432

451, 568, 517, 533, 578, 525, 566, 616, 571, 436

Step 2: Remove all the numbers greater than 567

451, 517, 533, 525, 566, 436

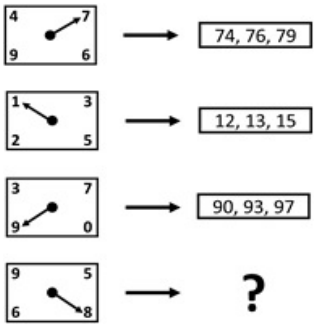
Remaining numbers are:

451, 517, 533, 525, 566, 436

Hence, there are 6 numbers remaining.

Thus, option b is the correct answer.

5. What will come in place of "?"



a) 89, 86, 85 b) 85, 86, 89 c) 86, 89, 85 d) 85, 89, 86

Answer: b

Solution:

In each figure, the digits shown on the left are used to form three 2-digit numbers**.** The digit pointed to by the arrow becomes the tens digit in all three numbers. The remaining digits become the ones digits**.**

The three numbers formed are then arranged in ascending order**.**

In the 4th term, the arrow points to 8. Using 8 as the tens digit, we create 86, 89, and 85.

These are then arranged as 85, 86, and 89.

Thus, option b is the correct answer.

---

6. If you remove all the numbers greater than 5 from row 1, all the numbers less than 4 from row 2, and all the numbers greater than 7 from row 3, then which row will have the largest count of numbers remaining?

Row 1	8	4	1	7	2	6
Row 2	5	2	7	0	3	1
Row 3	4	6	8	9	5	1

a) Row 1 b) Row 2

c) Row 3 d) Both rows 1 and 3 have equal numbers

Answer: c

Solution:

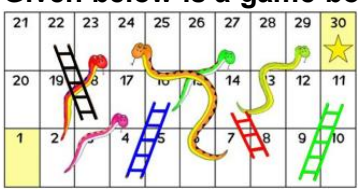
If the numbers are removed from the rows as indicated in the question, then Row 3 will have the highest count of remaining numbers. (Refer to the image given below).

Row 1	~~8~~	4	1	~~7~~	2	~~6~~	= 3 numbers
Row 2	5	~~2~~	7	~~0~~	~~3~~	~~1~~	= 2 numbers
Row 3	4	6	~~8~~	~~9~~	5	1	= 4 numbers

Hence, the correct answer is option c.

---

7. Given below is a game board of snakes and ladders. Which ladder is most beneficial?



a) Black b) Blue c) Red d) Green

Answer: b

Solution:

The Black ladder will give you the benefit of 4 steps.

The Blue ladder will give you the benefit of 12 steps.

The Red ladder will give you the benefit of 6 steps.

The Green ladder will give you the benefit of 2 steps.

Thus, the Blue ladder is the most beneficial ladder.

Hence, the correct answer is option b.

---

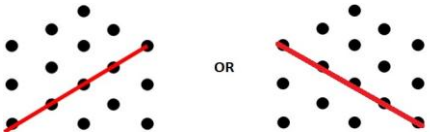
8. In the image given below, what is the maximum number of dots that can be connected by drawing a single straight line?

a) 3 b) 4 c) 5 d) 6

Answer: c

Solution:

As shown in the image below, the greatest number of dots that can be connected with a single straight line is 5. Hence, the correct answer is option c.



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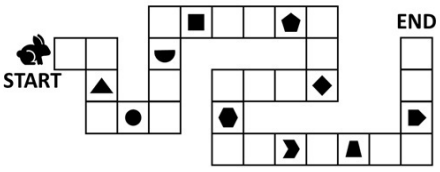
9. The rabbit has to reach the end of the path by stepping on EACH block WITHOUT skipping any blocks in between. It collects an item from every 5th block it steps on. Which of the following objects did it NOT collect?

Note: *The rabbit can step on a block exactly once*

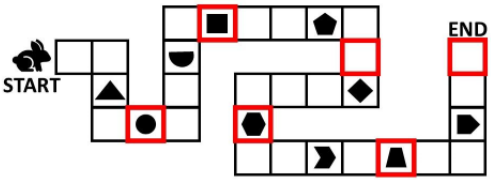


a)  b)  c)  d) 

Answer: c

Solution:

The rabbit collects the item from every 5th block it steps on. So, it will collect the objects that are highlighted below. From the options given, only option c has the object which will not be collected by the rabbit. Thus, option c is the correct answer.



10. Altogether, 25 coins are to be arranged in different stacks in such a way that each stack has one more coin than the previous stack. If the last stack has 7 coins, how many such stacks will be required so that no coins are left?

a) 4 b) 5 c) 6 d) 7

Answer: b

Solution:

It is given that each stack has one more coin than the previous stack, which means each stack has one less coin than the next stack.

Since it is given that the last stack has 7 coins, we work backwards and count the total number of coins. So, the earlier stack has 6 coins, 5 coins, and so on. We see that when we reach the stack with 3 coins, we reach a total of 25 coins (7 + 6 + 5 + 4 + 3). Hence, 25 coins are arranged in 5 stacks.
Thus, option b is the correct answer.

The Thinking Spot

My 4-digit phone passcode is made using only odd numbers, and no number is used more than once. 3 is the smallest digit in the code, and is also the last digit of the code. The largest digit and the smallest digit of the code have only one digit in between them.
What is the hundred's digit (2nd digit from the left) of my phone pass code?
Note: *None of the digits in the pass code are repeated. Each digit appears only once*

(a) 7

(b) 5

(c) 9

(d) Either option a or c

Answer: c

Solution:

In the phone passcode, 3 is the smallest odd digit. So, 1 cannot be in the passcode.

Since none of the digits in the passcode are repeated, the remaining odd digits must be 5, 7, and 9.

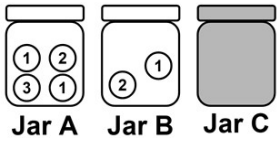
In the code, 3 is the last digit of the code (_ _ _ 3).

The largest and smallest digits in the code have exactly one digit between them. Therefore, the largest digit must be in the hundreds place. Among the remaining digits, 9 is the largest. So, 9 is placed in the hundreds place (_ 9 _ 3).

Thus, the correct answer is option c.

Chapter 4: Vacation with My Nani Maa

1. **Jars A, B, and C together have 9 balls, with each ball having a number written on it. Each number appears EXACTLY 3 times. What is the sum of the numbers in Jar C?**



a) 8 b) 9 c) 7 d) 6

Answer: a

Solution:

There are a total of 9 balls, some of which are already placed in the jars.

Step 1: Determine the number of balls in Jar C

- Jar A has 4 balls, and Jar B has 2 balls
- Total balls in A and B = 4 + 2 = 6
- Since the total number of balls is 9, the number of balls in Jar C is:
- 9 - 6 = 3 balls.

Step 2: Identify the numbers in Jar C

Each ball number appears exactly 3 times across all jars. Let's analyse:

- Ball numbered 1 has already appeared three times (2 in Jar A, 1 in Jar B)
- Ball numbered 2 has appeared twice (once in Jar A, once in Jar B). So, the third occurrence must be in Jar C
- Ball numbered 3 has appeared only once (once in Jar A). So, the remaining two occurrences must be in Jar C

Thus, the balls in Jar C are:

- One ball numbered 2
- Two balls numbered 3

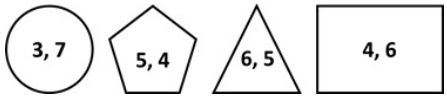
Step 3: Calculate the sum of numbers in Jar C

2 + 3 + 3 = 8

Final Answer: The sum of the numbers in Jar C is 8. Hence, the correct answer is option a.

---

2. **For each shape, if we remove the smallest digit, the difference between the remaining digits of which two shapes will be the LEAST?**



a) 

b) 

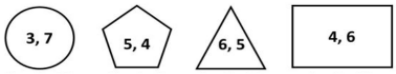
c) 

d) 

Answer: d

Solution:

The smallest digit from each shape is removed.



Remaining digits of each shape:

Circle: 7

Pentagon: 5

Triangle: 6

Rectangle: 6

As the triangle and rectangle have the same digit 6, their difference is 0, which is the LEAST possible difference between any two shapes.

Hence, option d is correct.

---

3. A, B, and C have some amount of money (in rupees) as shown below:

A = 50, B = 100, and C = 150

How much money should B and C together give to A such that each of them ends up with the same amount of money?

a) 15 b) 25 c) 50 d) 75

Answer: c

Solution:

Let's break down the situation. A, B, and C currently have 50, 100, and 150 rupees, respectively. The total money among them is 300 rupees. Ideally, each person should receive an equal share, which amounts to 300/3 = 100 rupees per person.

However, B and C already have 100 and 150 rupees, respectively. To ensure that everyone ends up with the same amount, B and C need to give some money to A.

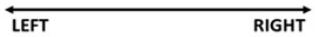
B, who has 100 rupees, doesn't need to give anything to A since B's amount is already equal to the target amount.

C, with 150 rupees, needs to give A enough money to balance the amounts. The amount C needs to give to A is 150 - 100 = 50 rupees.

Therefore, when B and C together contribute, they should give 50 rupees to A to ensure that each person has an equal share. Hence, the correct answer is option c.

---

4. Starting from the left end of a row, there are three kites, followed by two umbrellas, then three balls, and then three bottles in that order. Which item is located 7th from the right end of the given row?



a) Umbrella b) Kite c) Bottle d) Ball

Answer: a

Solution:

The easier approach to solve this is to count the items from the RIGHT END OF THE ROW:

3 bottles + 3 balls + 2 umbrellas + 3 kites (this sequence is in reverse order: from right to left)

After 3 bottles and 3 balls, the 7th item will be an umbrella only. Hence, the correct answer is option a.

5. **Tom (a boy) has 2 brothers. Each of his sisters has 2 sisters. How many children does Tom's mother have?**

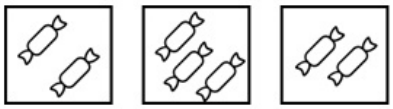
a) 7 b) 6 c) 5 d) 4

Answer: b

Solution:
Tom has 2 brothers, making it 3 boys including him. Additionally, each of his sisters has 2 sisters, giving a total of 3 sisters. So, the total number of children Tom's mother has is 6. Hence, the correct answer is option b.

---

6. **The given boxes have some candies, and if EACH of the given boxes should have EXACTLY 3 candies, then how many MORE candies do we need in total?**



a) 1 b) 2 c) 3 d) 4

Answer: b

Solution:
The 1st box has 2 candies; therefore, we need to add 1 more candy to make it 3.
2 + 1 = 3
The 2nd box has 3 candies. So, no additional candies are needed.
The 3rd box also has 2 candies, which means we need to add 1 more candy to reach 3.
2 + 1 = 3
In total, we need 2 more candies, 1 for the 1st box and 1 for the 3rd box, so that each box has exactly 3 candies. Hence, the correct answer is option b.

---

7. **A frog is standing on a number line at 0. It jumps on the number line such that in each jump, it moves 4 steps forward but then slips back 2 steps.**
In how many jumps will the frog reach number 18 for the first time?

a) 8 b) 9 c) 10 d) 11

Answer: a

Solution:
In each jump, the frog moves 4 steps forward but then slips back 2 steps, effectively covering 2 steps after each complete jump.
After 7 jumps, the frog will be at 14 (since 7 × 2 = 14).
On the 8th jump, it will move 4 steps forward from 14 and reach 18 before slipping back.
This is the first time the frog reaches 18.
Therefore, the frog reaches number 18 for the first time on the 8th jump.
Option a is the correct answer.

---

8. **X, Y, and Z start a game with 100 points each. After each round, the winner takes 10 points from each player. Z won only the fourth round, and they played 5 rounds in total. What is Z's final score? Note:** *No round can end in a draw*

a) 70 b) 80 c) 90 d) 100

Answer: b

Solution:

After each round, the winner receives 10 points from each player. They played 5 rounds, in which Z won only 1 round (the fourth round). This means Z lost the remaining 4 rounds.

Initially, Z has 100 points. By losing 4 rounds, Z lost (4 x 10 points) = 40 points (these points were given to the winners of each round).

On winning one round, Z received 10 points from both X and Y: (2 x 10 points) = 20 points.

Therefore, the final score of Z is calculated as follows:

Final score of Z = 100 - 40 + 20 = 80 points.

Hence, the correct answer is option b.

---

9. Which number will you NEVER get if you add a single digit number and a two-digit number?

a) 11 b) 102 c) 105 d) 109

Answer: d

Solution:

The greatest single digit number is 9 and the greatest two-digit number is 99. Thus, the maximum sum we can get is 108. Since 109 is greater than 108, we can never get it. Hence, the correct answer is option d.

---

10. A and B are playing a game, where the winner of every round receives 3 points and 1 point will be reduced from the loser's score. If they start with 10 points each, what could be the MAXIMUM possible difference between their final scores, if they play 5 rounds altogether?

a) 20 b) 25 c) 15 d) 10

Answer: a

Solution:

Step 1: Maximizing the Score Difference

To achieve the maximum difference, one player must win all 5 rounds, while the other loses all 5 rounds.

Winner's final score:

- Gains 3 points per round: 3 × 5 = 15 points
- As the players start with 10 points, Total score = 10 + 15 = 25

Loser's final score:

- Loses 1 point per round: 1 × 5 = 5 points lost
- As the players start with 10 points, Total score = 10 - 5 = 5

Step 2: Finding the Maximum Difference

Difference = 25 - 5 = 20

Thus, the maximum possible difference between their final scores is 20.

Thus, option a is the correct answer.

The Thinking Spot

There are 3 identical glasses A, B, and C which are filled equally. Now,

(A) Half of the water in glass A is poured into glass C

(B) Half of the water in glass C is poured into glass B

Which glass has the maximum amount of water?

(a) A

(b) B

(c) C

(d) Either A or C

Answer: b

Solution:

Let us say that each glass has 4 litres of water.

A) Half of the water in glass A is poured into glass C

Thus, glass A will have 2 litres and glass C will have 6 litres.

B) Half of the water in glass C (3 litres) is poured into glass B

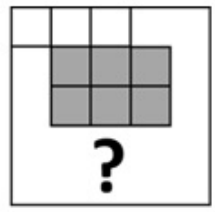
Thus, glass B will have 7 litres of water, C will have 3 litres of water. We know from the first step that A has 2 litres of water.

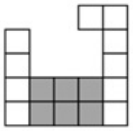
Hence, B will have the maximum amount of water.

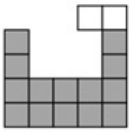
Thus, option b is the correct answer.

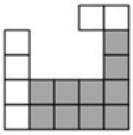
Chapter 5: Fun with Shapes

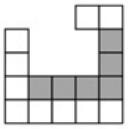
1. **Given below is an incomplete grid. Which option will complete the grid such that ALL the grey boxes TOGETHER form a square?**



a) 

b) 

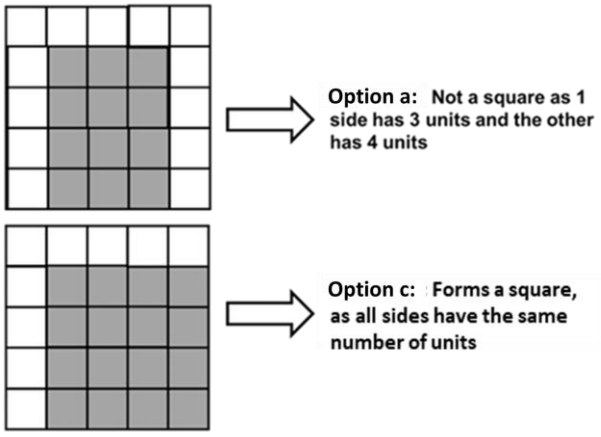
c) 

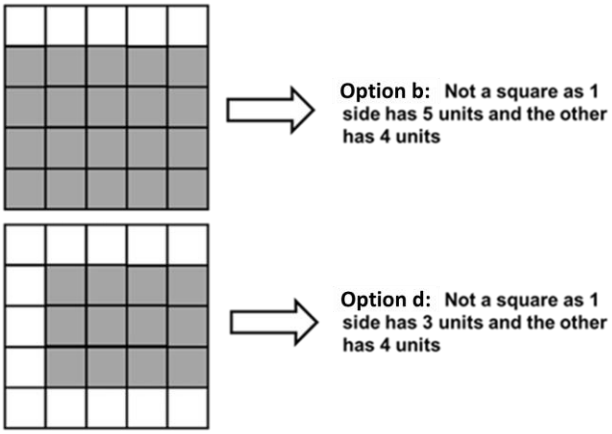
d) 

Answer: c

Solution:

To see if it makes a square, count each small box as one unit. A square has all sides equal, so the grey boxes together should make equal sides. As shown below, only option c makes a square because it has the same number of grey boxes on every side.



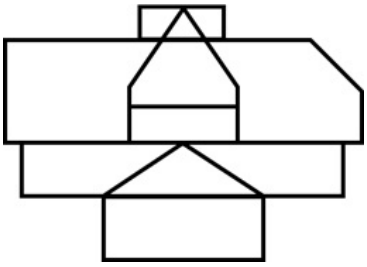


Hence, option c is the correct answer.

---

2. **Count the number of rectangles in the given figure.**

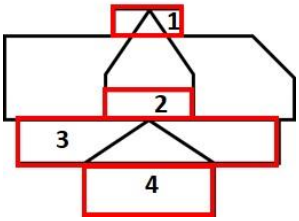
Note: *Please count all squares as rectangles for the purpose of this question*



a) 3 b) 4 c) 5 d) 6

Answer: b

Solution:
As highlighted below, there are 4 rectangles in the given figure.



Thus, option b is the correct answer.

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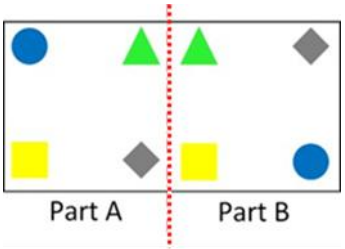
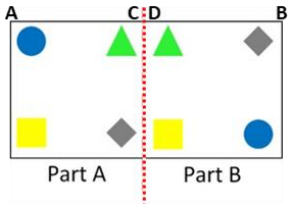
3. When the sheet is folded along the red dotted line, which two identical shapes will overlap?



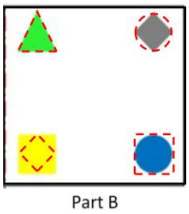
a) Triangle b) Square c) Circle d) Diamond

Answer: a

Solution:
When the paper is folded along the dotted lines, corner A will overlap with corner B, and corner C will overlap with corner D.



Hence the folder paper will look like:



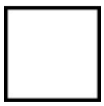
Here, the shapes with dotted edges represent the shapes from part A that overlap with part B of the paper.

As we can see, the only shape that overlaps with its identical shape is the triangle.

Hence, option a is the correct answer.

---

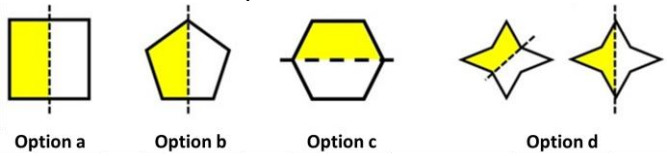
4. Which of the following shapes CAN NEVER give a 4-sided figure, when folded only once into two equal halves?

a)  b)  c)  d) 

Answer: d

Solution:

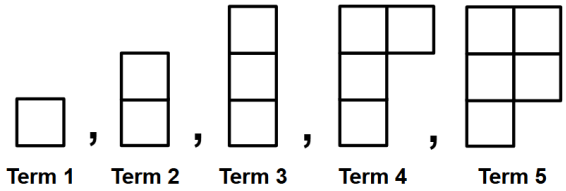
As shown below, option d will not form a four-sided figure when folded into two equal halves.



Thus, option d is the correct answer.

---

5. If the boxes keep getting added in the same pattern, then in which term, a complete square (made up of boxes) will be formed?



a) 7 b) 8 c) 9 d) 11

Answer: c

Solution:

Here, in every next term, the number of squares is increasing by 1.

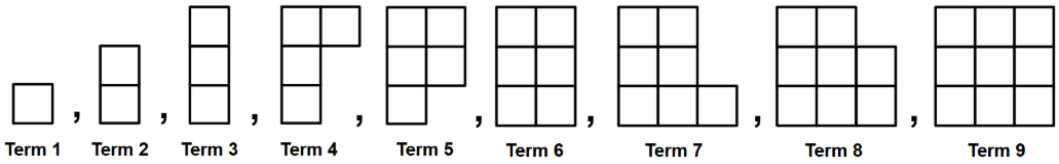
In the 1st term, there is 1 square, in the 2nd term, there are two squares, the 3rd term has 3 squares, the 4th term has 4 squares and so on.

Also, the new square is added each time, in a specific order.

The sequence begins by building a vertical stack (column) of three squares - bottom to top, then the second column is built from top to bottom and the third column is built again from bottom to top.

Thus, if we follow the same rule, we will get 9 squares in the 9th term, which form a square shape with three rows and three columns.

Hence, the correct answer is option c.



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6. The given shapes must be arranged to form a square without removing any shape. Which of the following actions are required to do so?

a) All the green shapes must take one left turn

b) All the green shapes must take one right turn

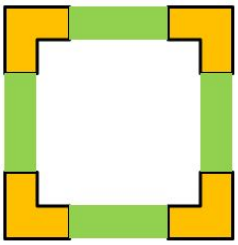
c) All the orange shapes must take one right turn

d) All the orange shapes must take one left turn

Answer: c

Solution:

As seen in the image, when the orange shapes take a right turn, the resulting shapes form a rectangle which is a closed shape. Hence, the correct answer is option c.



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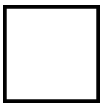
7. Which of the following shapes is NOT HIDDEN in the given figure?

a)  b)  c)  d) 

Answer: c

Solution:

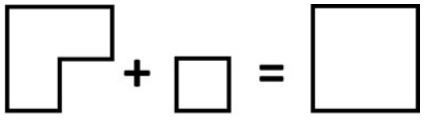
As highlighted below, option c is not hidden in the given figure.

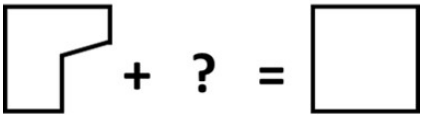
Option a **Option b** **Option d**

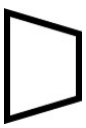
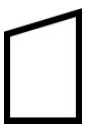
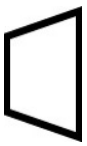
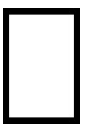
Thus, option c is the correct answer.

---

8. What will come in place of "?"





a)  b)  c)  d) 

Answer: b

Solution:

In the given analogy, the two shapes on the top combine to form a perfect square.

This shows that the pieces fit together such that all outer edges become straight and equal, completing the square.

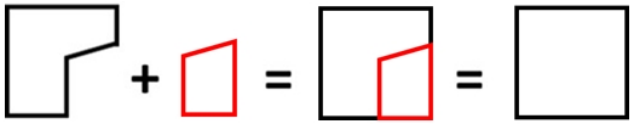
Similarly, in the second case, we must choose the shape that, when combined with the given shape, also forms a complete square.

Options a and c can be eliminated because their slanted edges do not align properly with the given shape. When joined, they would leave uneven or non-straight outer edges, which cannot form a square.

Option d can be eliminated because, despite having straight edges, its shape and size do not match the missing portion. When combined, it would either overlap or leave a gap, so a perfect square cannot be formed.

Option b fits correctly with the given shape. When the two are combined, all outer edges align to form four straight, equal sides, resulting in a perfect square.

Therefore, option b is the correct answer.



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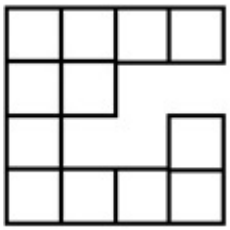
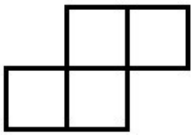
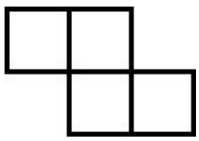
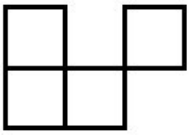
9. Identify the image which will complete the square grid given below.

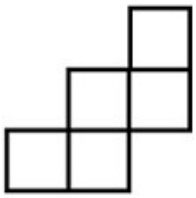
Note: *You CANNOT rotate the question image or the option images to find the answer*



a) 

b) 

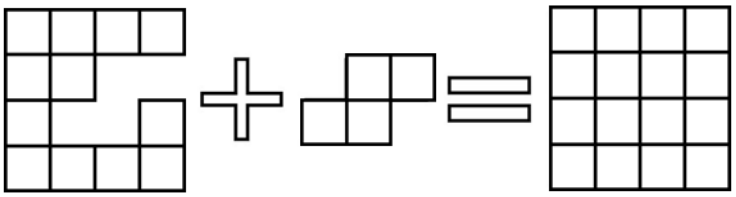
c) 

d) 

Answer: a

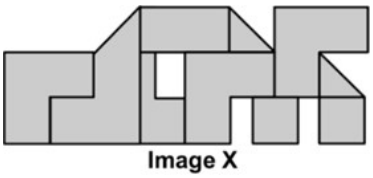
Solution:

As shown below, option a will complete the given square.



Thus, option a is the correct answer.

10. The figure below is formed of different blocks. Which block appears the MOST number of times in the given figure?



a) 

b) 

c) 

d) All of them occur equally

Answer: a

Solution:

Let us analyse each of the options:

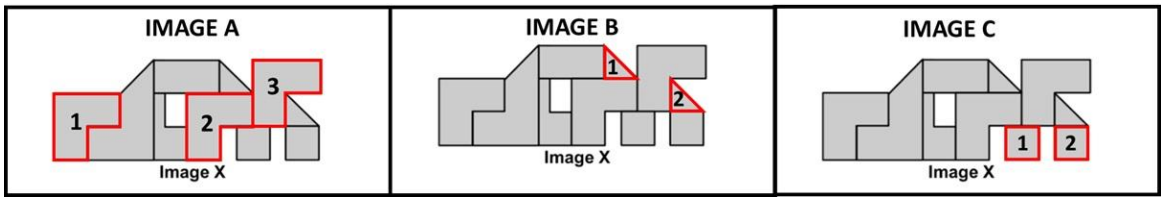
Option a: The block in option a appears three times (refer to Image A)

Option b: The block in option b appears twice (refer to Image B)

Option c: The block in option c appears twice (refer to Image C)

Option d: All of the blocks do not appear the same number of times

Hence, the block in option a appears the MOST number of times in the given figure.

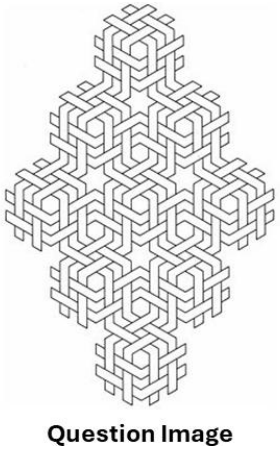


Thus, option a is the correct answer.

---

11. How many times is Image X present in the Question Image?

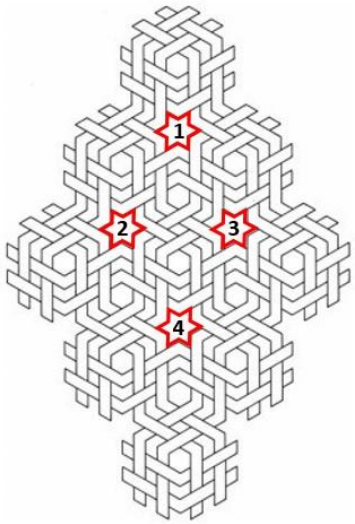
Note: *Rotation of Image X or the Question Image is not allowed*



a) 1 b) 2 c) 4 d) 5

Answer: c

Solution:
As highlighted below, Image X is present 4 times in the Question Image.
Thus, option c is the correct answer.



The Thinking Spot

A coach must make 2 teams of two players each from four friends A, B, C, and D such that each player can be in only one team. He needs to follow the following conditions:
a. A cannot team up with B
b. C cannot team up with B
Which of the following is a possible team?

(a) D and A

(b) C and D

(c) C and B

(d) D and B

Answer: d

Solution:

According to the given conditions, A and C cannot team up with B. So, only person who can team up with B is D.
Therefore, A and C are remaining for the second team.
Hence, the correct answer is option d.

Chapter 6: House of Hundreds – I

1. How many 3-digit numbers can you make with only 4 and 5, if one of the digits is present exactly twice?

a) 3 b) 5 c) 6 d) 9

Answer: c

Solution:

3-digit numbers have to be formed using 4 and 5, where one of the digits is used exactly twice.

So, the numbers must be formed using (4, 4, 5) or (4, 5, 5).

The possible combinations are: 445, 454, 544, 455, 545, 554.

Therefore, 6 such numbers can be formed. Hence, the correct answer is option c.

---

2. If the hundreds digits of each of the numbers given below are shifted to the units place, then how many numbers will be less than 150, finally?

314, 616, 511, 127, 814, 915, 118, 714

a) 3 b) 4 c) 5 d) 6

Answer: b

Solution:

Step 1: Shift the hundreds digits: 143, 166, 115, 271, 148, 159, 181, 147

Step 2: Identify numbers less than 150: 143, 115, 148, 147

There are 4 numbers less than 150. Hence, the correct answer is option b.

---

3. What is the difference between the largest and the second largest three-digit numbers formed using the digits 0, 3, and 1 such that no digit is repeated within a number?

a) 180 b) 99 c) 9 d) 1

Answer: c

Solution:

The largest 3-digit number formed using 0, 3, and 1 is: 310

The second largest 3-digit number formed using 0, 3, and 1 is 301.

Hence, the difference is 310 - 301 = 9. Thus, the correct answer is option c.

---

4. Find the odd one out.

Note: *It is not related to the number of letters, vowels, or consonants of the words*

a) Thirty-Two tens and two ones

b) Three hundreds and Twelve ones

c) Three hundred and twenty-two

d) Three hundreds, two tens and two ones

Answer: b

Solution:

In this question, we have to find the odd one out based on the values each option represents, rather than the structure or letters of the words.

Here's how each option translates to a numerical value:

Option a: Thirty-Two tens and two ones

Thirty-Two tens = 320

Two ones = 2
So, thirty-two tens and two ones mean 320 + 2 = 322

Option b: Three hundreds and Twelve ones
Three hundred = 300
Twelve ones = 12
So, three hundreds and Twelve ones = 300 + 12 = 312

Option c: Three hundred and twenty-two = 322

Option d: Three hundreds, two tens and two ones
Three hundred = 300
Two tens = 20
Two ones = 2
So, three hundreds, two tens and two ones = 300 + 20 + 2 = 322
As all the options except option b represent 322.
Thus, option b is the correct answer.

---

5. In a 3-digit number, the digit in the unit's place is twice the digit in the hundreds place. What could be the lowest possible value of the sum of the digits?

a) 0 b) 3 c) 4 d) 5

Answer: b

Solution:
We have to find the lowest possible value of the sum of the digits.
So, we must use the lowest possible digits.
Thus, the digit in the hundreds place = 1 (If we take 0, then it will not be a 3-digit number).
The digit in the unit's place is twice the digit in the hundreds place = 2.
The number could be 102.
Sum of digits = 3.
Hence, the correct answer is option b.

---

6. I am given a number 435. If the first (hundreds) and third (units) digits of this number are interchanged, then the new number will be _____ the original number.

a) smaller than b) same as c) greater than d) cannot say

Answer: c

Solution:
Given number: 435
After interchanging, the number becomes: 534
Hence, the new number will be greater than the original number.
Therefore, the correct answer is option c.

7. **Nishit remembers that his friend Shreya's score is more than 160 but less than 190, whereas their friend Nitigya remembers that Shreya's score is more than 170 but less than 200. If Nishit and Nitigya both remember correctly, and the unit's place of Shreya's score is 0, what is her score?**

a) 150 b) 160 c) 170 d) 180

Answer: d

Solution:

The unit's digit of Shreya's score is '0'.

As per Nishit, Shreya's score can only be 170 or 180.

As per Nitigya, Shreya's score can only be 180 or 190.

Between the two, only 180 is common. Therefore, Shreya's score is 180.

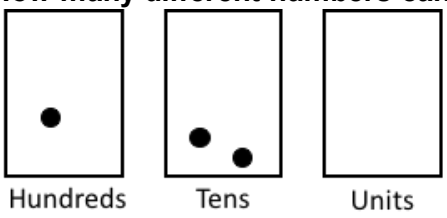
Hence, the correct answer is option d.

---

8. **Lalit has 3 marbles and 3 boxes, where each box represents a place value, as labelled. He places the marbles into the boxes to form a number.**

For example, in the image shown below, the number 120 is formed.

How many different numbers can Lalit form if he uses all 3 marbles every time to make a number?



a) 6 b) 9 c) 10 d) 11

Answer: c

Solution:

The numbers Lalit can form depend on how he places the 3 marbles in the 3 boxes.

1. All 3 marbles together:
   - 3, 30, 300
2. 2 marbles together and 1 separate:
   - 120, 102, 12, 210, 21, 201
3. All 3 marbles separate:
   - 111

So, the total number of different numbers that can be formed = 3 + 6 + 1 = 10

Hence, Lalit can form 10 different numbers.

Thus, option c is the correct answer.

---

9. **In a 3-digit number, the digit at the unit's place represents the total number of 0's this number has. Which of the following must be the digit at the unit's place in this number?**

a) 0 b) 1 c) 2 d) 3

Answer: b

Solution:

Let's assume a 3-digit number is XYZ.

Z is the unit digit, and it represents the total number of 0's this number has.

If the units digit is 0, it means the number should contain 0 zeroes. But since Z itself is 0, the number already contains at least one zero. This contradicts the condition. So, Z cannot be 0.

Z can be 1. In that case, a possible number could be 101 (or any other number in which the unit digit is 1 and the tens digit is 0. The digit at the hundreds place could be any digit from 1 to 9).

Z cannot be 2 as well because in that case the values of X and Y will be 0, and then the number won't be a 3-digit number. Instead, it will become a single-digit number.

Z cannot be 3 as well because we have only 2 digits remaining, excluding the unit digit.
Hence, the correct answer is option b.

---

10. If P and Q are two 3-digit numbers, then which of the following CANNOT be the difference of P and Q?

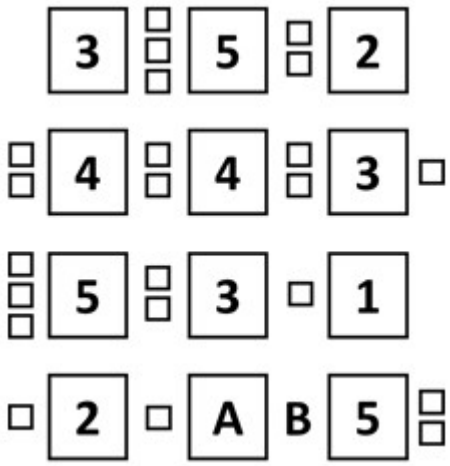
a) 950 b) 150 c) 300 d) 750

Answer: a

Solution:

To determine which number cannot be the difference of P and Q we need to find the maximum possible difference. By subtracting the smallest three-digit number (100) from the largest three-digit number (999), we obtain a maximum possible difference of 899. When comparing this to the given options, we notice that the number 950 exceeds the maximum possible difference of 899. Since, 950 cannot be the difference of P and Q. Hence, the correct answer is option a.

If every row follows the same theme, what will come in the place of "A" and "B"?



(a) A = 3 , B = 

(b) A = 3 , B = 

(c) A = 4 , B = 

(d) A = 4 , B = 

Answer: c

Solution:

The total number of small blocks next to each number corresponds to its numerical value.

• In the first row, 3 has 3 small blocks, 5 has 5 small blocks (3 on the left + 2 on the right), and 2 has 2 small blocks

• Applying the same pattern to the last row:

• 2 has 2 blocks next to it

• 5 must have 5 blocks next to it. Since there are already 2 blocks on the right, B must be 3 blocks

• A has one block on the left and 3 blocks on the right (B), making a total of 4 blocks. So, A = 4

Thus, the correct answer is option c (A = 4, B = 3 blocks).

Chapter 7: Raksha Bandhan

1. **Every class that visits the National Museum is divided into groups of 6 students for each tour guide. Among the given options, which of the classes would not be able to form groups of 6 students with none left over?**

   Note: *The number in the option is the number of students in that class*

   a) 36 b) 42 c) 38 d) 48

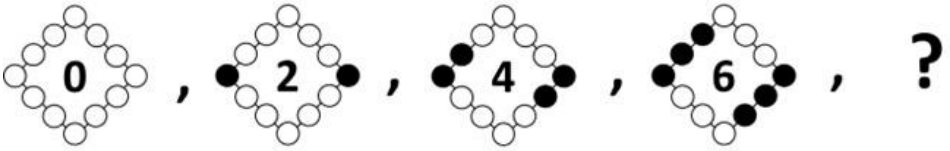
   Answer: c

   Solution:

   Only those classes which have a student count which is a multiple of 6 will be able to form groups of 6 students with no one left over. Since the class with 38 students will only be able to form 6 groups of six students and 2 students will be left over, the correct answer is option c.

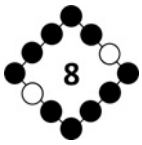
---

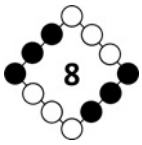
2. **What will come in place of "?" in the given series?**



a) 

b) 

c) 

d) 

   Answer: a

   Solution:

   The following things are happening in the given sequence:

   - The series follows an even number sequence starting from 0, 2, 4, and so on
   - The number of shaded circles around the shape matches the number inside the shape
   - The shading begins at the left and right corners, and in each next term, the adjacent circles are shaded in sequence from both sides

   Following this pattern, the next even number in the series is 8, with 8 circles shaded.

   Therefore, option a is the correct answer.

---

3. **I have to distribute a few sweets. If I keep 2, 3, or 4 sweets in a pack, then I am left with one sweet after all packs are made. But if I put 5 sweets in a pack, I am left with none. What is the MINIMUM number of sweets I have?**

   Note: *I have more than one pack*

   a) 25 b) 50 c) 54 d) 55

   Answer: a

   Solution:

   As no sweets are left when packed in groups of 5, the total number of sweets must occur in the 5 table. (5, 10, 15, 20....). Since 1 sweet is left when they are packed in groups of 2, 3, or 4, the total number is not divisible by 2, 3, or 4.

   Now, we have to identify the MINIMUM possible number of sweets.

If 5 is the minimum number of sweets, we would have only one pack.

If 10 is the minimum number of sweets, then the sweets can be distributed in packs of 2 as well.

Similarly, 15 and 20 also cannot be the minimum number of sweets as they can be distributed equally in packs of 3 and 4 respectively.

Hence, 25 is the MINIMUM possible number. Thus, option a is the correct answer.

---

4. Which of the following statements is/are necessarily required to answer the question below?

Question: Which number am I?

Statement 1: I am not an even number.

Statement 2: If you multiply any number with me then the answer is the same as the number which was multiplied with me.

a) Only statement 1 is required

b) Only statement 2 is required

c) Both statements 1 and 2 are required

d) Cannot be answered even if we use both the statements together

Answer: b

Solution:

Using only statement 1, we can't determine the value of the number. Thus, statement 1 alone is insufficient to answer the question.

Any number multiplied by 1 will give you the same number. Hence, only from statement 2 we know that the number is 1. Thus, option b is the correct answer.

---

5. PQ and RS are 2-digit numbers in the equation given below. How many different possible values can "RS" have?

$$RS = 4 \times PQ$$

a) 12 b) 13 c) 14 d) 15

Answer: d

Solution:

It is given that RS = 4 x PQ

RS is a 2-digit number that is the product of 4 and another 2-digit number PQ.

Now, as RS is a 2-digit number, it must be less than 100.

So, we have to find out the possible 2-digit values of "PQ", which when multiplied by 4, give a result less than 100.

We know that 10 is the smallest 2-digit number.

4 x 10 gives 40.

The least possible value of RS is 40.

Similarly, all numbers from 10 to 24 when multiplied by 4 give an answer less than 100.

25 or a greater number when multiplied by 4 gives at least 100.

So, there are 15 such possible values for RS.

Hence, the correct answer is option d.

6. Reema put 10 x 7 plastic cups in the first stack, 10 x 8 plastic cups in the second stack, and 10 x 9 plastic cups in the third stack. If this pattern continues, how many plastic cups will Reema put in the fifth stack?

a) 100 b) 108 c) 110 d) None of these

Answer: c

Solution:

1st stack = 10 x 7 = 70 cups

2nd stack = 10 x 8 = 80 cups

3rd stack = 10 x 9 = 90 cups

Reema puts 10 more cups in each subsequent stack. So, the fourth stack should contain 100 cups and similarly the fifth one should contain 110 cups. Hence, the correct answer is option c.

---

7. I have some toys. If I take 2 times the number of toys with me and divide them equally into groups of 30, then 3 groups will be formed. What is the number of toys I have?

a) 5 b) 20 c) 45 d) 180

Answer: c

Solution:

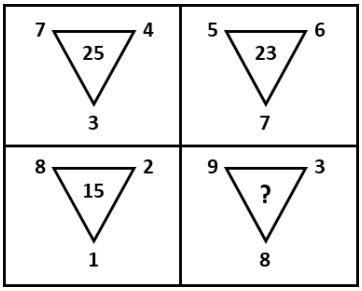
3 Groups of 30 toys will altogether have 30 + 30 + 30 = 90 toys.

If 90 is 2 times the number of toys with me, then I must have 45 toys.

Hence, the correct answer is option c.

---

8. If all the given triangles follow the same pattern, what will come in place of "?"



a) 15 b) 19 c) 32 d) 17

Answer: b

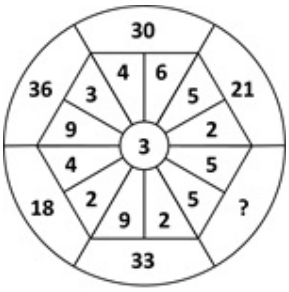
Solution:

The number in the middle of the triangle is obtained by multiplying the two numbers at the top and then subtracting the number written at the bottom of the triangle from the product.

So, 9 × 3 = 27, and 27 – 8 = 19.

Therefore, option b is the correct answer.

9. What will come in place of "?"



a) 24 b) 30 c) 25 d) 15

Answer: b

Solution:

The number in the outermost circle is the product of the sum of the numbers in the layer below (hexagon) it and the number in the middle circle.

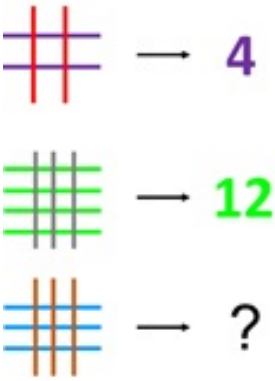
For example, 36 is the product of 9 + 3 = 12 and 3.

Similarly, 5 + 5 = 10 and 10 x 3 = 30 is the answer.

Hence, the correct answer is option b.

---

10. What will come in place of "?"



a) 6 b) 9 c) 9 d) 6

Answer: c

Solution:

The number on the right is the product of the number of lines of different colours on the left. The number is written in the same colour as the horizontal lines.

For example, 1st pair has 2 vertical lines and 2 horizontal lines. So, their product will be 2 × 2 = 4 (written in purple colour)

The 2nd pair has 3 grey and 4 green lines; thus, their product will be 3 × 4 = 12. (written in green colour)

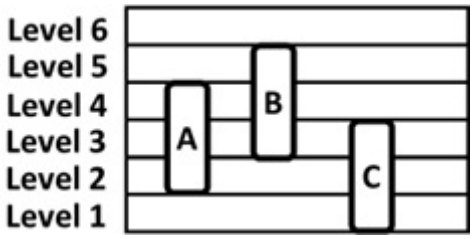
Similarly, the last pair has 3 blue and 3 orange lines, so their product will be 3 × 3 = 9 (written in blue colour).

Hence, the correct answer is option c.

There are 3 rods A, B, and C placed at different levels as shown below.

- **Rod A moves 1 level up**
- **Rod B moves 2 levels down**
- **Rod C moves 2 levels up**

HOW MANY levels are COMMON between ALL three rods?



(a) 0

(b) 1

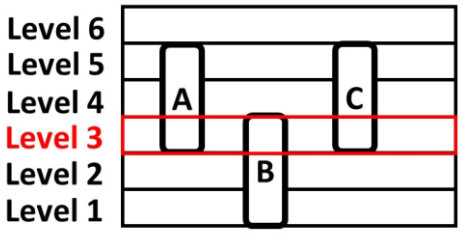
(c) 2

(d) 3

Answer: b

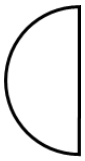
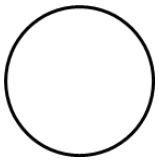
Solution:

After the movement of all three rods as given in the question, only one level will be common between all three rods. So, the answer is option b.



Chapter 8: Fair Share

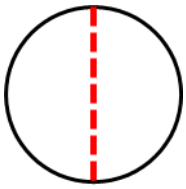
1. **A piece of paper was folded in half to get a semicircle. What was the original shape before the fold?**

a)  b)  c)  d) 

Answer: d

Solution:

A circle can be folded in half to get a semicircle. So, the original shape of the paper is a circle. Hence, the correct answer is option d.



---

2. **If the alphabets are divided into two equal halves - from A to M and N to Z, which letter in the other half would be in the same position as the letter J?**

a) Q b) V c) X d) W

Answer: d

Solution:

We divide the alphabet into two equal halves:

- First half: A to M (13 letters)
- Second half: N to Z (13 letters)

Write the first half with positions:

A (1), B (2), C (3), D (4), E (5), F (6), G (7), H (8), I (9), J (10), K (11), L (12), M (13)

So, J is the 10th letter in the first half.

Now, write the second half with positions:

N (1), O (2), P (3), Q (4), R (5), S (6), T (7), U (8), V (9), W (10), X (11), Y (12), Z (13)

The 10th letter in the second half is W.

Hence, the correct answer is option d.

---

3. **3 people A, B, and C have to cover a distance of 12 m each. A has covered half the distance. B has covered half the distance covered by A, and C has covered double the distance covered by B. Who among the following has covered the least distance?**

a) A

b) B

c) C

d) All three of them have covered equal distance

Answer: b

Solution:
A has covered half the total distance, which means A has covered 6 m.
B has covered half the distance covered by A, which means B has covered 3 m.
C has covered double the distance covered by B, which means C has covered 6 m.
Thus, A and C have each covered 6 m, while B has covered 3 m. Hence, B has covered the least distance. Thus, option b is the correct answer.

---

4. Fill in the blank.
Half of 4 + Half of 8 = ___

a) 12 b) 10 c) 8 d) 6

Answer: d
Solution:
Half of 4 + Half of 8
= 2 + 4
= 6
Hence, the correct answer is option d.

---

5. If '#' means 'half of 2', '$' means 'double of 2', and '&' means '2', then which of these options results in 3?

a) 6 – $ – # b) 6 – # – & c) 6 + & + # d) 6 – # + &

Answer: b
Solution:
Given:
'#' means half of 2
'$' means double of 2
'&' means 2

Step 1: Find the values of each symbol
Half of 2 = 2 ÷ 2 = 1, so # = 1
Double of 2 = 2 × 2 = 4, so $ = 4
'&' means 2

Step 2: Check each option

Option a: 6 – $ – #
= 6 – 4 – 1
= 1

Option b: 6 – # – &
= 6 – 1 – 2
= 3

Option c: 6 + & + #
= 6 + 2 + 1
= 9

Option d: 6 – # + &
= 6 – 1 + 2
= 7
Hence, the correct answer is option b.

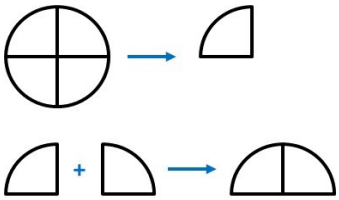
6. **A circular piece of paper is cut into four identical quarters. Two or more quarters are joined together. Which of these figures can possibly be made by joining them? Note:** *You cannot overlap the quarters*

a) Triangle b) Semicircle c) Trapezium d) Rectangle

Answer: b

Solution:

If a circle is cut from a paper into 4 identical (i.e. equal) parts, each part would be a quarter of a circle, if 2 quarters are joined together, they CAN make a semicircle. Hence, option b is the correct answer.



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7. **There are 3 different circular sheets: A, B, and C. The radius of sheet B is twice the radius of sheet A and half the radius of sheet C. Which sheet requires the HIGHEST number of folds to attain the shape of a quarter circle?**

a) A

b) B

c) C

d) All of them require the same number of folds

Answer: d

Solution:

You can convert the circle to a semi-circle by making one-fold along the centre line (diameter of the circle).

Then you can make another fold along the centre of the semi-circle to make a quarter.

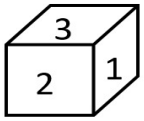
The same process is applicable to circles of any radius.

Therefore, any circle requires exactly 2 folds.

Hence, the correct answer is option d.

---

8. **If the number on the bottom face of the cube is double the number on the front face, what is the sum of the number on the top face and bottom face?**



a) 8 b) 7 c) 6 d) 4

Answer: b

Solution:

Given:

The number on the bottom face of the cube is double the number on the front face.

From the figure:

- Number on the front face = 2
- Number on the top face = 3

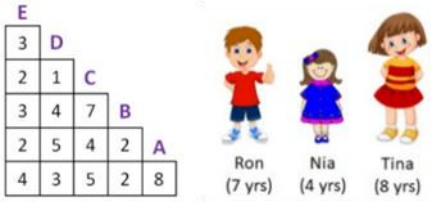
Step 1:
Number on the bottom face = Double of number on the front face
= 2 × 2 = 4

Step 2:
Sum of the numbers on the top face and bottom face
= 3 + 4 = 7

Hence, the correct answer is option b.

---

9. Three friends are playing a game. In this game, a staircase with numbers written on it is given. The students shown on the right side have to stand on any random step. If a student stands on a step where the numbers in the column below that step add up to either half or double their age, then he/she will win the game. Which of A, B, C, D, or E is the step on which no one will win?



a) Step A
b) Both steps B and C
c) Step D
d) Step E

Answer: c

Solution:
The numbers in the column below the steps will add up as follows:
Step A = 8 (Double of Nia's age)
Step B = 2 + 2 = 4 (Half of Tina's age)
Step C = 7 + 4 + 5 = 16 (Double of Tina's age)
Step D = 1 + 4 + 5 + 3 = 13
Step E = 3 + 2 + 3 + 2 + 4 = 14 (Double of Ron's age)
Only Step D does not add up to half or double of any of the friends' ages.
Hence, the correct answer is option c.

---

10. What will come in place of "?"

3_4_6 → 4_8_3

2_2_4 → 3_4_2

2_6_8 → ?

a) 4_12_8
b) 4_12_4
c) 3_3_4
d) 3_12_4

Answer: d

Solution:
Following changes are happening
- 1st number increases by 1
- 2nd number doubles
- 3rd number becomes half

Similarly, if we make the following changes in the 3rd row then we will get 3_12_4.
Thus, option d is the correct answer.

The Thinking Spot

Sam removed a pair of digits from SET A such that the sum of the removed digits equals the sum of the remaining digits in SET A.

Which of the following is NOT a possible two-digit number that can be formed using the remaining digits?

SET A: (1) (2) (3) (4)

(a) 14

(b) 32

(c) 42

(d) Both options b and c

Answer: c

Solution:

We need to determine which two numbers can be removed from the given SET A = {1, 2, 3, 4} such that the sum of the removed numbers equals the sum of the remaining numbers.

Step 1: Calculate the total sum: 1 + 2 + 3 + 4 = 10

Since we are removing two numbers whose sum is equal to the sum of the remaining two numbers, the sum of the removed numbers should be: 10 ÷ 2 = 5

Step 2: Find valid pairs

The pairs of numbers that sum to 5 are:

• (4,1) - Remaining digits: {2,3}

• (3,2) - Remaining digits: {1,4}

Step 3: Form possible two-digit numbers

• If (4,1) is removed - Remaining digits: {2,3} - Possible numbers: 23, 32

• If (3,2) is removed - Remaining digits: {1,4} - Possible numbers: 14, 41

Step 4: Identify the incorrect option

The given options: 14, 32, 42

• 14 - Possible

• 32 - Possible

• 42 - Not possible (since 4 and 2 are never together as remaining digits)

Thus, the correct answer is option c.

Chapter 9: House of Hundreds – II

1. In a 3-digit number, the digit in the tens place is twice the digit in hundreds place. What could be the maximum possible sum of the digits?

a) 21 b) 12 c) 27 d) 18

Answer: a

Solution:

The digit in the tens place is twice the digit in the hundreds place.

So, the tens place and hundreds place digit pair can be (2, 1), (4, 2), (6, 3), or (8, 4).

Since we have to find the maximum possible value of the sum of the digits, we will use the maximum possible digits.

So, the tens place digit will be 8, the hundreds place digit will be 4, and the unit place digit will be 9 (highest possible digit). So, the 3-digit number will be 489 and the sum of the digits will be 4 + 8 + 9 = 21.

Hence, the correct answer is option a.

---

2. Product of two numbers is 100. Which of the given options is DEFINITELY true?

a) Sum of these numbers is 25

b) Sum of these numbers is 20

c) Sum of these numbers is 52

d) None of these

Answer: d

Solution:

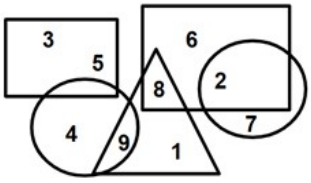
The product of two numbers can be 100 in a number of ways. 20 and 5, 50 and 2, 4 and 25, and so on. So, the sum of the two numbers cannot be uniquely determined. Hence, the correct answer is option d.

---

3. With regards to the figure given below,

X = (The smallest 3-digit number made using different digits from the circles) + (any one digit present ONLY in a rectangle)

What is the highest possible value of X?



a) 255 b) 253 c) 252 d) 247

Answer: b

Solution:

The smallest 3-digit number made using different digits from the circles is 247.

To maximize the value of X, we have to add the largest one digit present ONLY in a rectangle, which is 6.

So, X = 247 + 6 = 253.

Note: 8 is present in the rectangle as well as the triangle. So, it cannot be considered

Hence, the correct answer is option b.

4. Which number will you get if you subtract 1 from the smallest 3-digit number?

a) Largest 3-digit number

b) Smallest 2-digit number

c) Largest single digit number

d) Largest 2-digit number

Answer: d

Solution:

The smallest 3-digit number is 100 and if you subtract 1 from it, you will get 99, which is the largest two-digit number. Hence, the correct answer is option d.

---

5. If "X" is a number formed by the addition of two 3-digit numbers, then which of the following is DEFINITELY NOT true regarding "X"?

a) X can be a 4-digit number

b) X can be less than 200

c) X can have all different digits

d) None of the above

Answer: b

Solution:

"X" is a number formed by the addition of two 3-digit numbers.

999 + 900 = 1899, which is a 4-digit number.

So, X can be a 4-digit number.

Option a is possible.

100 + 100 = 200.

So, the least possible value of X is 200 and X cannot be less than 200.

So, option b cannot be true.

230 + 146 = 376, which has all different digits.

So, option c is also possible.

Hence, the correct answer is option b.

---

6. If the digits of the options given below are rearranged to form the highest possible number, then which of the following options will give the highest number after the rearrangement?

a) 546 b) 273 c) 370 d) 154

Answer: b

Solution:

To solve this question, you need to look for the option which has the greatest digit.

Options b and c have the greatest digit i.e. 7.

Between options b and c, you should look for the 2nd and 3rd greatest digits.

Option b forms the greatest number i.e. 732.

Thus, option b is the correct answer.

7. **There are 500 needles in a box.**

   Between Asha and Nisha, who will pick the last needle?

   Statement 1 - Both players take turns picking up the needles one after another until all the needles are finished.

   Statement 2 - Nisha was the first one to pick a needle.

   To answer the given question, which of the given statements is/are sufficient?

   a) Only 1

   b) Only 2

   c) Both 1 and 2 together

   d) Question cannot be answered even if both statements are used

   Answer: c

   Solution:

   From the first statement, we know they pick needles alternately, one at a time. Since 500 is even, the person who picks second will also pick the last needle. However, we do not know who starts first.

   So, Statement 1 alone is insufficient.

   From the second statement, we know that Nisha picked the first needle, but we do not know how many needles are picked at a time or how they alternate. Therefore, Statement 2 alone is also insufficient.

   Using both statements together, we know the needles are numbered from 1 to 500 and are picked one at a time alternately.

   Since Nisha picks the first needle, she gets all the odd-numbered turns (1, 3, 5, 7, …), while Asha gets all the even-numbered turns (2, 4, 6, 8, …).

   As the 500th turn is even, the last needle goes to Asha.

   Therefore, the question can be answered using both statements together.

   Hence, the correct answer is option c.

---

8. **Find the next term in the given series:**

   220, 235, 260, 275, 300, 315, 340, __

   a) 365 b) 375 c) 355 d) 345

   Answer: c

   Solution:

   Observe the series carefully.

   From the first term onward, the numbers increase by 15 and 25 alternately.

   - 220 increases to 235 by adding 15
   - 235 increases to 260 by adding 25
   - This pattern of adding 15, then 25, continues throughout the series

   The last increase is by 25, so the next increase will be by 15.

   Adding 15 to 340 gives 355.

   Therefore, the correct answer is option c.

9. Raj has forgotten the password to unlock his phone. The password is a 3-digit number. The second digit is 2 times the first digit, and the third digit is 3 times the first digit. How many valid combinations are present to unlock Raj's phone? (Kindly note that 000 is not a valid password combination)

a) 1 b) 2 c) 3 d) 5

Answer: c

Solution:

There are only 3 possible 3-digit numbers which follow the given condition: 123, 246, 369.

Hence, there are three valid password combinations that satisfy the given conditions.

Therefore, the correct answer is option c.

---

10. There are 600 students in a school. Some of them play cricket or football, and 240 students play both. The number of students who do not play any sport is 56. How many students play exactly one sport?

a) 544 b) 520 c) 340 d) 304

Answer: d

Solution:

We know that out of 600 students 56 do not play any sport.

600 - 56 = 544

Therefore 544 students play either one or two sports.

Out of the 544 students, we can see that 240 students play two sports.

544 - 240 = 304

Therefore, the remaining 304 students play only one sport.

Hence, the correct answer is option d.

What will come in place of "?"

SQUARE ⟶ S Q U A R E

TRIANGLE ⟶ T R I A N G L E

RECTANGLE ⟶ ?

(a) R E C T A N G L E

(b) R E C T A N G L E

(c) R E C T A N G L E

(d) R E C T A N G L E

Answer: c

Solution:

The logic is as follows:

1. The name of a shape is written on both sides of the arrow.

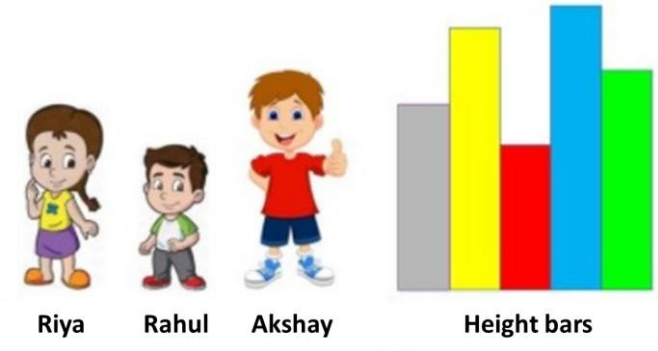
2. After the arrow, the number of letters surrounded by the same shape starting from the beginning is the same as the number of sides of that particular shape.

For example, Square has 4 sides. So, 4 letters of the word SQUARE are surrounded by the squares after the arrow.

Similarly, in the last term, 4 letters of the word RECTANGLE are surrounded by the rectangles after the arrow.
Hence, the correct answer is option c.

Chapter 10: Fun at Class Party!

1. **Height bars on the right show the heights of the children on the left. If Rahul is related to red and Akshay is related to green, then Riya is related to which of the following colours?**



a) Blue b) Red c) Yellow d) Grey

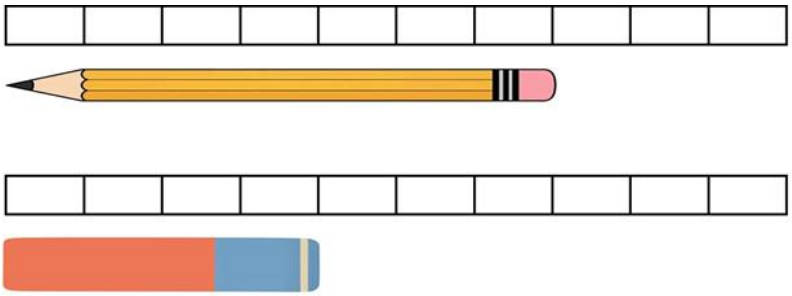
Answer: d

Solution:

Rahul is the shortest, Akshay is the tallest and Riya is in the middle. Therefore, the bar which represents Riya's height should be shorter than green and taller than red. Only grey bar satisfies these conditions. Hence, the correct answer is option d.

---

2. **Find the combined length (in units) of the pencil and the eraser. Note:** *1 box equals 1 unit*

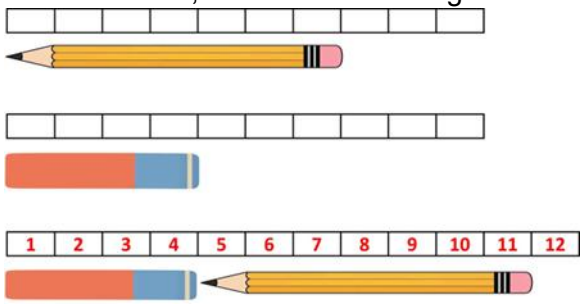


a) 12 units b) 11 units c) 10 units d) 13 units

Answer: b

Solution:

We know that 1 box represents 1 unit. The length of the pencil is 7 units and the length of the eraser is 4 units. Hence, their combined length is 11 units. Hence, the correct answer is option b.



3. **A cricket bat is 11 cm long, a badminton racket is 10 cm long, and a tennis racket is 8 cm long. What is the difference between the length of the longest object and the shortest object?**

a) 1 cm b) 2 cm c) 3 cm d) 4 cm

Answer: c

Solution:

The given lengths are:

- Cricket bat = 11 cm
- Badminton racket = 10 cm
- Tennis racket = 8 cm

The **longest object** is the cricket bat (11 cm), and the **shortest object** is the tennis racket (8 cm).

Difference between their lengths = 11 – 8 = **3 cm**

Hence, **option c** is the correct answer.

---

4. **If the girls shown below are arranged in the descending order of their heights, then Misha is neither first nor last. Also, in the original picture Misha is not standing at either of the ends. Who is Misha?**

a) 1 b) 2 c) 3 d) 4

Answer: c

Solution:

Misha is not standing at either of the ends. So, the girls 1 & 4 cannot be Misha.

If the girls are arranged in descending order of their heights, Misha is not first or last. This means that Misha is neither the tallest girl or the shortest girl. Therefore, Misha cannot be girl 2 also.

Hence, Misha is girl 3. Hence, the correct answer is option c.

---

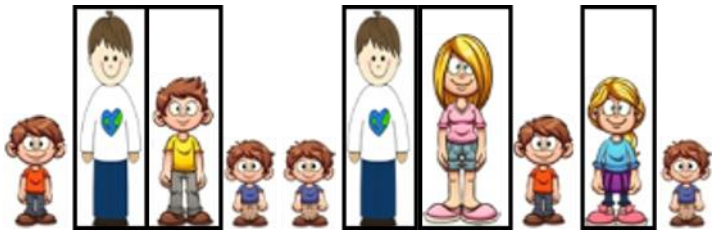
5. **A group of kids with different heights is shown below. How many kids have at least one shorter kid as their immediate neighbour?**

a) 3 b) 4 c) 5 d) 6

Answer: c

Solution:

As highlighted below, there are 5 kids who have at least one shorter kid at their immediate sides.



Hence, the correct answer is option c.

---

6. A man starts at point X, jumps forward, and is immediately dragged backward by some distance. The distances of both the forward jump and the backward drag increase by exactly 1 foot in every turn (in a sequential order), as shown in the table below. He starts by jumping 3 feet forward. Find the total number of jumps he makes to touch a pole, 12 feet away from point X.

Jumps forward	Dragged backwards
3 feet	1 foot
4 feet	2 feet
5 feet	3 feet
6 feet	4 feet
7 feet	5 feet

a) 3 b) 4 c) 5 d) 6

Answer: b

Solution:

Let's carefully track the man's position after each jump.

Given:

- In the 1st jump, he moves 3 feet forward and is dragged 1 foot backward
- In every next jump, both the forward and backward distances increase by 1 foot each time

1st Jump:

- Starts at point X and moves forward 3 feet, at 3 feet
- Dragged back 1 foot, at 2 feet
  Position after 1st jump = 2 feet

2nd Jump:

- Moves forward 4 feet, at 2 + 4 = 6 feet
- Dragged back 2 feet, at 6 - 2 = 4 feet
  Position after 2nd jump = 4 feet

3rd Jump:

- Moves forward 5 feet, at 4 + 5 = 9 feet
- Dragged back 3 feet, at 9 - 3 = 6 feet
  Position after 3rd jump = 6 feet

4th Jump:

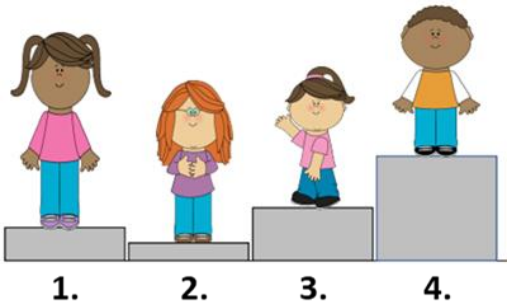
- Moves forward 6 feet, at 6 + 6 = 12 feet

(He reaches the pole exactly before being dragged back.)

Hence, he reaches the pole in his 4th jump.

Thus, option b is the correct answer.

7. On which Block is the tallest girl (consider the height without the block) standing?



a) 1 b) 2 c) 3 d) 4

Answer: a

Solution:

As per the question, we have to first determine who the tallest girl is, and then identify the block on which she is standing.

Currently, girl (1) and girl (4) appear to be almost of the same height.

However, girl (4) is standing on the tallest block.

So, she appears to be taller, and this is just because she is on the tallest block, and she is not the tallest.

Similarly, girl (2) and girl (3) appear to be of almost of the same height.

However, girl (3) is standing on a block higher than girl (2).

So, even girl (3) is not the tallest. She is just standing on a block which is the second tallest.

So, girls (3) and (4) are eliminated.

Girls (1) and (2) are tall and it is difficult to visually decide who between them is taller than the other.

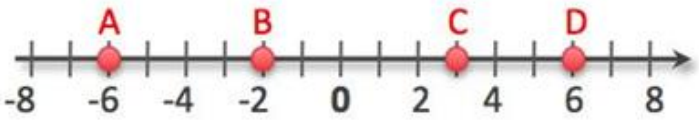
But, if you observe carefully, block (2) is almost half the height of block (1). However, both the girls standing on these blocks have a major height difference (as in how their heads reach after standing over the block).

This tells us something important: Even though girl (1) is standing on a slightly taller block, their heights vary a lot.

This means that the extra height we see in girl (1) is not just because of the block, but she is herself taller than girl (2).

Hence, girl (1) is the tallest. Thus, the correct answer is option a.

8. **In the following image, how many line segments are present, which are EXACTLY a unit greater than any other line segment?**
Note: *Please consider only those segments which are named using the letters*



a) 1 b) 2 c) 3 d) 4

Answer: c

Solution:

In the given image,

CD = 3 units

AB = 4 units

BC = 5 units

BD = 8 units

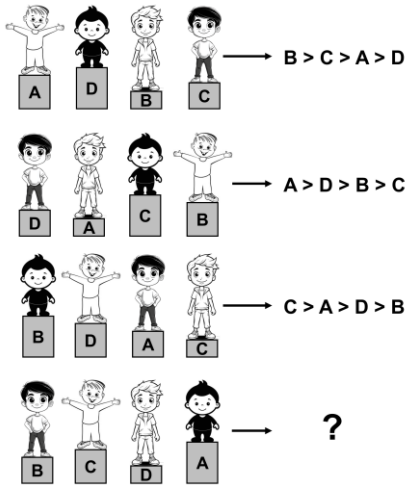
AC = 9 units

Therefore, there are three-line segments, (AB, BC, AC) which are EXACTLY a unit greater than any other line segment.

Hence, option c is the correct choice.

---

9. **What will come in place of "?"**



a) **A > C > B > D** b) **D > C > B > A** c) **D > B > C > A** d) **A > B > C > D**

Answer: c

Solution:

On the left side, different kids, labelled as A, B, C, and D, are positioned on blocks in a way that corresponds to the order of their heights, with the tallest kid standing on the shortest block. This arrangement ensures that all the kids reach the same height when standing on their respective blocks.

The letters on the right side represent the kids. These letters are arranged in descending order based on the height of the kids.

In the fourth term, we can see that D is the tallest among the kids. Accordingly, D should be the first letter. This eliminates options a and d.

We can see that B is the second tallest among the kids.

So, D will be followed by B.

D > B

This eliminates option b.

The correct arrangement will be D > B > C > A.

Thus, option c is the correct answer.

---

10. Among 3 structures, Tower, Pole, and Building, the tower is (3 + 4) cm taller than the building. The building is exactly (5 + 11) cm taller than the pole.
What is the height of the tallest structure?

a) 21 cm b) 16 cm c) Pole + 16 d) Pole + 23

Answer: d

Solution:

The tower is 3 + 4 = 7 cm taller than the building.

Tower > Building

The building is exactly 11 + 5 = 16 cm taller than the Pole.

Building > Pole

Tower > Building > Pole

Tower = 7 + 16 + Pole

Tower = Pole + 23

Hence, the correct answer is option d.

The Thinking Spot

Cut the given strip into exactly 3 different sections by making 2 cuts- one section having 3 blocks, one with 4 blocks, and one with 6 blocks.

What is the MAXIMUM number of glasses that can appear in any section?

(a) 5

(b) 4

(c) 3

(d) 2

Answer: b

Solution:

We need to divide the structure into sections of **three blocks, one with four blocks, and one with six blocks.** Our goal is to have the section with the most glasses.

The section with **six blocks** is the longest, so it can hold the most glasses. Let's first cut this section in a way that gives us the maximum number of glasses.

If we go with the above arrangement, we can get a maximum of 5 glasses, but we won't be able to cut the other sections of 3 blocks or 4 blocks.

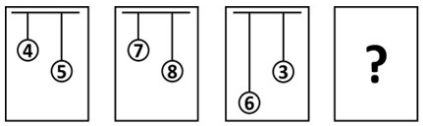
So, we need to cut the section with 6 blocks differently to make sure we can also get sections of 3 blocks and 4 blocks. This means the previous arrangement won't work, and we must adjust our cuts accordingly.

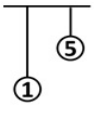
In the above arrangement, the section with 6 blocks has 4 glasses, the section with 4 blocks has 2 glasses, and the section with 3 blocks also has 2 glasses. So, the maximum number of glasses that can appear in any section is **4.**

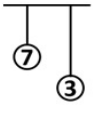
Thus, option b is the correct answer.

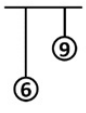
Chapter 11: Filling and Lifting

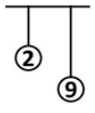
1. If each of the following terms follows the same theme, what will come in place of "?"



a) 

b) 

c) 

d) 

Answer: d

Solution:

Each term consists of two numbers: the smaller number is placed in the circle connected to the shorter string, while the greater number is placed in the circle connected to the longer string. Only option d follows this logic; therefore, it will replace the question mark.

Thus, option d is the correct answer.

---

2. Find the odd one out.

a) ● < ● ● ●

b) ● ● ● ● ● < ● ● ●

c) ● < ● ● ● ●

d) ● ● < ● ● ●

Answer: b

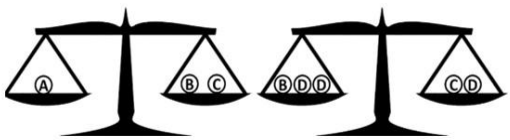
Solution:

In all the options, operator "<" is used correctly except option b.

Thus, option b is the correct answer.

---

3. Given below are two weighing scales balanced using four different types of balls A, B, C, and D. Identify the option which correctly depicts the relationship between weights of balls A, B, and C.



a) A > B > C

b) B > C > A

c) C > A > B

d) A > C > B

Answer: d

Solution:

From the first weighing scale, it is clear that ball A balances the combined weight of balls B and C. This shows that A is heavier than each of B and C individually, since two balls together are needed to match the weight of A.

So, options b and c can be ruled out.

In the second scale, the weights of balls B and two D's are balanced against the weight of balls C and D.

By nullifying the weight of one D on both sides, it is evident that the combined weight of balls B and D equals the weight of ball C, signifying that ball B is lighter than ball C.

Hence, the correct order of the weights is A > C > B. Thus, the correct answer is option d.

---

4. I am a pumpkin weighing 800 grams. A watermelon weighs 450 grams more than me. A musk melon weighs 450 grams less than me. What will be the total weight of musk melon and watermelon?

a) 1 kg and 200 grams

b) 1 kg

c) 1 kg and 600 grams

d) 2 kg

Answer: c

Solution:

Let's find the weight of each fruit step by step.

- Weight of pumpkin = 800 grams
- Weight of watermelon = 800 + 450 = 1250 grams
- Weight of musk melon = 800 – 450 = 350 grams

Now, total weight of watermelon and musk melon = 1250 + 350 = 1600 grams

We know that 1000 grams = 1 kilogram.

So, 1600 grams = 1 kilogram and 600 grams

Hence, option c is the correct answer.

---

5. I am a weighing machine and I can measure weights from 20 kg to 120 kg. Which of the following items will I not be able to weigh?

a) A cylinder of 29 kg

b) A suitcase of 18 kg

c) A boy of 52 kg

d) A box of mangoes of 40 kg

Answer: b

Solution:

If I measure from 20 kg to 120 kg. I cannot measure a suitcase of 18 kg, as 18 < 20.

Hence, the correct answer is option b.

---

6. A, B, C, and D are carrying bags of different weights. Each of B, C, and D has a bag lighter than A's bag. Also, C's bag is heavier than B's bag but lighter than D's bag. Who among these 4 has the lightest bag?

a) A

b) B

c) C

d) D

Answer: b

Solution:

We know from the question that A has the heaviest bag. C's bag is heavier than B's bag but lighter than D's bag. Therefore, A > D > C > B. Thus, option b is the correct answer.

7. Choose the INCORRECT option.

a) ○ ○ = △ △

b) ○ ○ > △ △ △

c) ○ = △

d) ○ < △ △

Answer: b

Solution:

It is given in the question image that 1 circle = 1 triangle.

Option a: 2 circles = 2 triangles which is possible.

Option b: Two circles are greater than three triangles is not possible

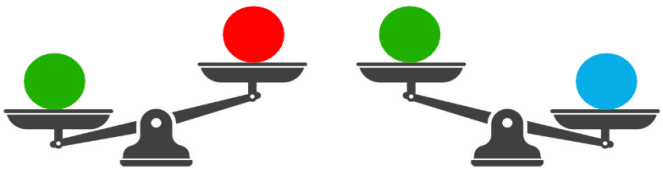
Option c: 1 circle equals 1 triangle which is possible.

Option d: Two triangles are greater than one circle which is possible

Hence, option b is the answer.

---

8. There are 3 balls of different weights. Can you find the heaviest ball based on the weighing scales given below?



a) Red ball

b) Blue ball

c) Green ball

d) Cannot be determined

Answer: b

Solution:

Scale 1:

Since the side of Green ball goes down, we know that

Green ball > Red ball

Scale 2:

Since the side with Blue ball goes down, we know that

Blue ball > Green ball

Blue ball > Green ball > Red ball.

From above, we know that the Blue ball is the heaviest.

Hence, the correct answer is option b.

9. You have 12 balls. All weigh the same except for one which is a little heavier than the other 11. With the help of a weighing balance, in how many MINIMUM weighings can you certainly find the heavier ball?

a) 2 b) 3 c) 4 d) 5

Answer: b

Solution:

Let us divide the balls into 2 groups (ball 1-6) and (ball 7-12). Now, we put the 2 groups on either side of the balance. The group which is heavier will have the heavier ball. Say (balls 7-12)

Now, let us divide (balls 7-12) into 2 groups, (balls 7-9) and (balls 10-12). We repeat the process and take the heavier group, say (balls 7-9)

Now, we divide balls 7-9 in three groups: ball 7, ball 8 and ball 9. We weigh ball 7 against ball 8. If they balance then ball 9 is the heavier ball. If they do not balance then the heavier side contains the heavier ball.

Hence, 3 weighs are required.

Another method of solving is to divide the balls into three groups of 4 balls each.

Now, for the first weigh, we weigh two groups on either side of the balance.

If the heavier ball is in one of the two groups, the balance will be tilted on that side.

If the two groups balance, the heavier ball is in the left out group.

Now, take the heavier group (4 balls) and divide it into two groups of two balls each.

For the second weigh, we weigh the two groups against each other.

The group with the heavier ball will tilt towards the bottom.

Now, for the third weigh, we must weigh the two balls in the heavier group against each other.

Thus, we will get the heavier ball in three weighs.

Thus, the correct answer is option b.

---

10. A recipe requires 3 litres of milk, and there are 4 litres in 1 packet. How many packets are needed to make the recipe four times?

a) 12 b) 3 c) 7 d) 1

Answer: b

Solution:

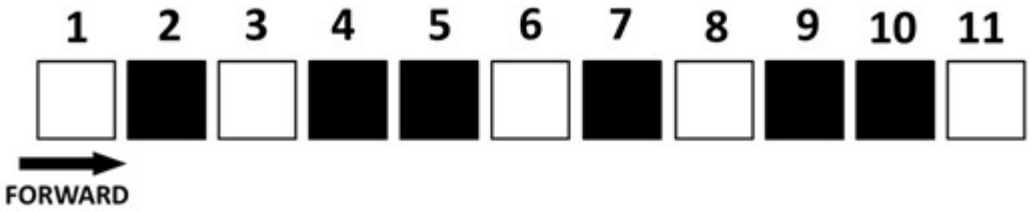
Total quantity of milk needed to make the recipe 4 times = $3 \times 4 = 12$

Total number of packets required = $12 \div 4 = 3$

Hence, the correct answer is option b.

The Thinking Spot

Sam must travel from block numbered 1 to block numbered 11, moving ONLY in the forward direction. When on a WHITE block, he must skip the next TWO blocks. When on a BLACK block, he must skip the next ONE block. How many black and white blocks will he skip during this journey?



(a) Black - 4, White - 2

(b) Black - 3, White - 2

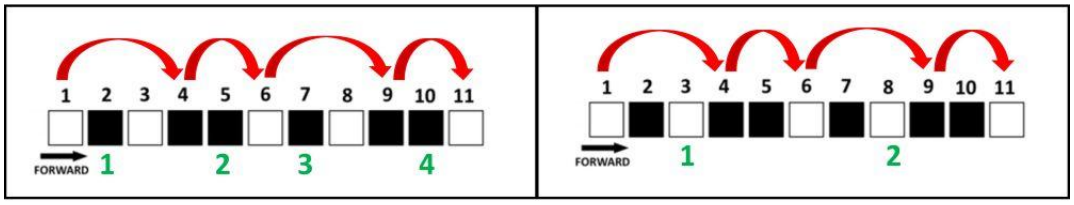
(c) Black - 4, White - 1

(d) Black - 3, White - 3

Answer: a

Solution:

As shown in the image below, Sam skips 4 Black and 2 White blocks during his journey. Thus, option a is the correct answer.

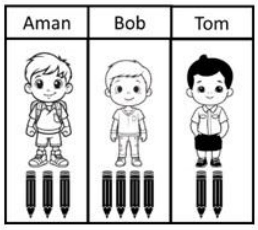


Number of black blocks skipped

Number of white blocks skipped

Chapter 12: Give and Take

1. **Aman, Bob, and Tom have some pencils as shown below. After Bob gives one pencil to Aman and 1 to Tom, who will have the MOST number of pencils at the end?**



a) Aman
b) Bob
c) Tom
d) All have an equal number of pencils

Answer: a

Solution:

Initially, the number of pencils each person has is:

- Aman: 3 pencils
- Bob: 4 pencils
- Tom: 2 pencils

Now, after Bob gives 1 pencil to Aman and 1 pencil to Tom, the new number of pencils each person has is:

- Aman: 3 + 1 = 4 pencils
- Bob: 4 − 2 = 2 pencils
- Tom: 2 + 1 = 3 pencils

Therefore, Aman has the most pencils with 4 in total.
Hence, the correct answer is option a.

---

2. **Sam has Rs. 20. He gives half of the amount to Ram. After that, he buys 2 Pencils. Which of the following options shows the item(s) which he will NOT be able to buy with the remaining money?**

Pencil	Rs. 3
Chocolate	Rs. 2
Eraser	Rs. 1
Ruler	Rs. 4
Sharpener	Rs. 5

a) 2 Chocolates
b) 3 Erasers
c) 1 Sharpener
d) 1 Ruler

Answer: c

Solution:

Sam had Rs. 20. He gave half of it to Ram, which is Rs. 10. After that, he spent Rs. 6 on buying Pencils. He was left with Rs. 4. Since 1 Sharpener costs Rs. 5, he won't be able to buy it with the remaining amount. Hence, the correct answer is option c.

3. Out of the four balloons shown below, Sam shot TWO balloons of DIFFERENT colour. Which of the following CANNOT be the sum of the numbers on the balloons shot?

a) 5 b) 7 c) 8 d) 9

Answer: c

Solution:

If Sam shot two balloons of different colours, the possible combinations of numbers on the balloons are:

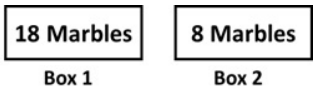
- 2 (number on the black balloon) and 5 (number on the white balloon) (Sum = 7)
- 2 (number on the black balloon) and 3 (number on the white balloon) (Sum = 5)
- 3 (number on the white balloon) and 4 (number on the black balloon) (Sum = 7)
- 5 (number on the white balloon) and 4 (number on the black balloon) (Sum = 9)

The option that cannot be the sum of numbers on the balloons shot is 8 (option c).

Hence, the correct answer is option c.

---

4. What is the MAXIMUM number of marbles that can be shifted from Box 1 to Box 2, such that Box 1 will still have MORE marbles than Box 2?



a) 3 b) 4 c) 5 d) 9

Answer: b

Solution:

To solve the given question, we start by adding all the marbles: 18 + 8 = 26.

If we distribute the marbles equally between the two boxes, each will have 13 marbles. However, we want Box 1 to have more marbles than Box 2 while shifting the maximum number of marbles.

To achieve this, we should minimize the difference in the number of marbles between the two boxes. Therefore, Box 1 should have (half + 1) marbles, and Box 2 should have (half - 1) marbles. This means Box 1 should have 14 marbles, and Box 2 should have 12 marbles.

Since Box 1 initially has 18 marbles, we need to subtract to reach 14: 18 - 14 = 4.

Thus, we must shift 4 marbles from Box 1 to Box 2 to satisfy the condition.

Thus, option b is the correct answer.

---

5. Which two numbers should be exchanged such that the sum of numbers in Row 1 and Row 2 is equal?

Row 1	5	6	3
Row 2	7	1	2

a) 5 and 2 b) 3 and 2 c) 6 and 7 d) 3 and 1

Answer: d

Solution:

Row 1: 5, 6, 3 (Total = 14)

Row 2: 7, 1, 2 (Total = 10). The two rows should have equal sums.

Right now, Row 1 has 4 more than Row 2 (14 − 10 = 4)

1. To make them equal, we need to shift 2 points from Row 1 to Row 2 (because both rows should meet in the middle: 4 ÷ 2 = 2)
2. So, we must exchange a number from Row 1 that is 2 more than a number from Row 2
    - From Row 1: 5, 6, 3
    - From Row 2: 7, 1, 2
3. The pair that differs by 2 is 3 and 1
4. Swap them
    - New Row 1: 5 + 6 + 1 = 12
    - New Row 2: 7 + 3 + 2 = 12

Both rows now have equal sums. Hence, the correct answer is option d.

---

6. Four friends A, B, C, and D had 5 chocolates each.

- **A gave 2 chocolates to C**
- **B gave 3 chocolates to A**

Who has the most number of chocolates after the exchange?

a) A b) B c) C d) D

Answer: c

Solution:

To prevent errors, it's essential to approach such problems step by step:

Four friends, A, B, C, and D, had 5 chocolates each.

A = 5, B = 5, C = 5, D = 5

A gave 2 chocolates to C

A = 3, B = 5, C = 7, D = 5

B gave 3 chocolates to A

A = 6, B = 2, C = 7, D = 5

Thus, C has the most number of chocolates. Hence, the correct answer is option c.

---

7. Aman has 2 blue and 2 red balloons, while Bob has 1 red and 2 blue balloons.
- First, Bob gives 2 balloons of the same colour to Aman
- Then, Aman gives 2 balloons of different colours to Bob
What is the difference in the number of BLUE BALLOONS they have after the exchange?

a) 0 b) 1 c) 2 d) 3

Answer: c

Solution:

Initially, Aman has 2 blue and 2 red balloons, while Bob has 1 red and 2 blue balloons.

Step 1: Bob gives 2 balloons of the same colour to Aman

As Bob has 1 red and 2 blue balloons with him, he can give only 2 blue balloons to Aman (2 balloons of the same colour)

So, after this, Aman will have 4 blue balloons and 2 red balloons. Bob will have 1 red balloon.

Step 2: Aman gives 2 balloons of different colours to Bob

Aman gives 1 blue and 1 red balloon to Bob (2 balloons of different colours).

So, after this, Aman will have 3 blue balloons and 1 red balloon. Bob will have 2 red balloons and 1 blue balloon.

Therefore, the difference between the number of blue balloons after the exchange is 3 - 1 = 2.
Hence, the correct answer is option c.

8. Three friends Mary, Sam, and Tom have some pairs of shoes as follows:

- Mary has 8 pairs of shoes with her

- Tom and Sam together have 12 pairs of shoes

- Sam and Mary together have 14 pairs of shoes

How many pairs of shoes do Tom and Mary together have?

a) 8 b) 10 c) 12 d) 14

Answer: d

Solution:

Mary has 8 pairs of shoes.

Sam and Mary together have 14 pairs of shoes. Therefore, Sam has 6 pairs (14 - 8) of shoes.

Tom and Sam have 12 pairs of shoes. Since Sam has 6 pairs of shoes as mentioned above, Tom has 6 pairs (12 - 6) of shoes.

Therefore, Tom and Mary have 14 pairs of shoes together (6 + 8).

Hence, option d is the correct answer.

---

9. A has some money which could be in denominations of Rs. 10, Rs. 20, or Rs. 50. If A has three notes whose total is Rs. 90, then which of the following statements is necessarily TRUE?

a) A has only 1 type (denomination) of currency note

b) A has only 2 types (denominations) of currency notes

c) A has all the 3 types (denominations) of currency notes

d) Either option a or option c

Answer: b

Solution:

Rs. 90 can be made using two notes of Rs. 20 and one note of Rs. 50.

(20 + 20 + 50 = 90)

Thus, A must be having only two types of currency notes.

Note: A may also make Rs. 90 by using one note of Rs. 50, one note of Rs. 20, and two notes of Rs. 10. However, that would mean a total of four notes, which contradicts the condition given in the question. Therefore, this combination is not possible. Hence, the correct answer is option b.

---

10. Given below is a question followed by two statements. Identify which of the following statement(s) is/are necessary to answer the question.

Question: How much money do A and B have together?

Statement 1: A has Rs. 30 more than what C has and Rs. 20 less than what B has.

Statement 2: A has Rs. 100.

a) Statement 1 alone is sufficient

b) Statement 2 alone is sufficient

c) Both Statement 1 and Statement 2 are necessarily required

d) Question cannot be answered even if both Statement 1 and Statement 2 are taken

Answer: c

Solution:

From Statement 1, we only know the relationship between the amounts A, B, and C have. A has Rs. 30 more than C and Rs. 20 less than B. However, we do not know the actual amount A has.

Thus, Statement 1 alone is insufficient.

From Statement 2, we know that A has Rs. 100, but we still do not know how much B has.
So, Statement 2 alone is insufficient.
When we combine both statements, we can find that:

- A has Rs. 100 (from Statement 2)
- B has Rs. 20 more than A. So, B has Rs. 120

Therefore, together A and B have Rs. 220. Hence, both Statement 1 and Statement 2 are required.
Thus, option c is the correct answer.

The Thinking Spot

In a parking space there are 4 slots, where each slot can accommodate either a car, 2 scooters, or 3 bicycles. If there are 3 cars, 3 scooters, and 3 bicycles to be parked, then what is the MAXIMUM number of vehicles that can be parked?

(a) 5

(b) 6

(c) 7

(d) 8

Answer: c

Solution:

To fit the maximum number of vehicles, we should choose the ones that take up the least space.

We have 4 slots, and each slot can hold:

- 1 car OR
- 2 scooters OR
- 3 bicycles

Step-by-step allocation:

1. Start with bicycles since they take up the least space:

- 1 slot = 3 bicycles (3 vehicles parked)

2. Next, park scooters:

- 1 slot = 2 scooters (2 more vehicles parked)

3. Now, 2 slots remain. We can either:

- Park 2 cars (1 in each slot) OR
- Park 1 car + 1 scooter (2 more vehicles parked)

Total vehicles parked = 3 + 2 + 2 = 7

So, the correct answer is option c.

Chapter 13: Time Goes On

1. What will come in place of "?"

a) 
b) 
c) 
d) 

Answer: c

Solution:

The longer hand in the clock moves in a repeated sequence of +2 steps, then +1 step.

Starting from 1, it first moves 2 steps to point at 3, then 1 step to point at 4.

Following the same pattern (+2, +1, +2, +1, …), the next movement will again be +2 steps.

So, the longer hand will jump two steps ahead from 7 to 9.

Hence, the correct answer is option c.

---

2. The school is organizing an event in the 5th month of the year. The event will take place twice a month. If the event occurs on even numbered dates only, then which of the following could be possible dates for this event?

a) 6th and 8th June
b) 6th and 13th May
c) 7th and 15th May
d) 6th and 12th May

Answer: d

Solution:

The 5th month of the year is May. The event takes place on even days only. Therefore, the possible dates are 6th and 12th May. Hence, the correct answer is option d.

---

3. The day after tomorrow is Friday. Which day of the week is tomorrow?

a) Wednesday
b) Thursday
c) Friday
d) Saturday

Answer: b

Solution:

“The day after tomorrow” is two days ahead of today. If the day after tomorrow is Friday, then two days from today is Friday.

Counting backwards two days from Friday tells us that today is Wednesday.

Therefore, tomorrow (one day after today) is Thursday.

Hence, option b is the correct answer.

4. **Cricket matches are held every day from Monday to Friday.**
   - **Tim watches on Wednesday, as well as the day before and the day after Wednesday**
   - **Sam watches on Friday, as well as the day before Friday**

   On which day do both Tim and Sam watch a cricket match?

   a) Thursday b) Wednesday c) Tuesday d) Friday

   Answer: a
   Solution:
   Tim watches on Wednesday, as well as the day before and the day after Wednesday.
   So, Tim watches on Tuesday, Wednesday and Thursday.
   Sam watches on Friday, as well as the day before Friday.
   So, Sam watches on Thursday and Friday.
   Thus, both Tim and Sam watch on Thursday.
   Hence, option a is the correct answer.

---

5. **If the day before yesterday was Saturday, which day will be the day after tomorrow?**

   a) Friday b) Tuesday c) Thursday d) Wednesday

   Answer: d
   Solution:
   "Day before yesterday" means two days before today. If the day before yesterday was Saturday, then:
   - Yesterday = Sunday
   - Today = Monday

   Now, tomorrow will be Tuesday, so the day after tomorrow (two days from today) will be Wednesday.
   Therefore, the correct answer is option d.

---

6. **Anish went on a trip for a few days. He left on a certain day and returned on the same day the next week. How many days did he go out for?**

   Note: *Please include the day he left and the day he returned in the duration of his trip*

   a) 6 b) 7 c) 8 d) 9

   Answer: c
   Solution:
   Let's assume Anish went out on Wednesday. So, he must have returned by next Wednesday. There are six days between these days and we need to include the day he left and the day he returned.
   So, 6 + 2 = 8. Thus, option c is the correct answer.

---

7. **The teacher entered the class at 8:30 AM.**
   Sam entered the class 2 minutes after the teacher.
   Tom entered 5 minutes before the teacher.
   George entered 5 minutes after Sam.
   Who entered the class last among the following?

   a) Tom b) Sam c) George d) George and Tom

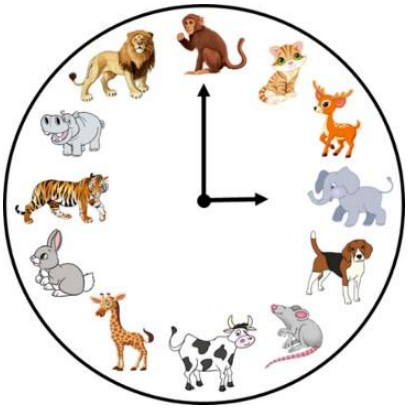
   Answer: c
   Solution:
   To prevent errors, it's a good idea to organize the data in a table. From the table, we can observe that George was the last to enter at 8:37 AM.

PERSON	ENTRY TIMINGS
Teacher	8:30 AM
Sam (2 mins after the teacher)	8:32 AM
Tom (5 mins before the teacher)	8:25 AM
George (5 mins after Sam)	8:37 AM

Hence, the correct answer is option c.

---

8. Which animals will the clock point towards at 7:00 AM?



a) Giraffe and Cat
b) Rabbit and Monkey
c) Mouse and Monkey
d) Giraffe and Monkey

Answer: d

Solution:

As shown in the image below, the hands point towards Giraffe and Monkey at 7:00 AM.

Hence, the correct answer is option d.

---

9. Mariya has her swimming class tomorrow. If the day before yesterday was Monday, then on which day does Mariya have her swimming class?

a) Monday
b) Tuesday
c) Wednesday
d) Thursday

Answer: d

Solution:

If the day before yesterday was Monday, then yesterday was Tuesday, and today is Wednesday. Therefore, tomorrow will be Thursday. Hence, the correct answer is option d.

10. In the month of July, no two holidays are on consecutive days. Which of the given options can be understood from the given statement? Note: *Sundays are not necessarily holidays*

a) There cannot be more than 11 holidays in the month of July

b) There cannot be more than 16 holidays in the month of July

c) There cannot be more than 7 holidays in the month of July

d) None of these

Answer: b

Solution:

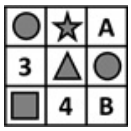
July has 31 days. The restriction “no two holidays are on consecutive days” means every holiday must be followed (or preceded) by at least one non-holiday day.

To maximise the number of holidays under this rule we should make the gap between holidays as small as allowed - that is, alternate holiday / non-holiday / holiday / non-holiday ….

If we declare every alternate day as a holiday starting from the 1st, then all odd-numbered days will be holidays. Since July has 31 days, the last holiday will fall on 31st July, making a total of 16 holidays.

Thus, the largest possible number of holidays in July without any two being consecutive is 16.
Therefore, option b is the correct answer.

In the grid provided below, each number represents the total number of unique shapes in its row and column combined. What should replace A and B in the grid?



(a) A = 3 and B = 

(b) A = 3 and B = 

(c) A = 2 and B = 

(d) A = 3 and B = 

Answer: c

Solution:

The numbers in the grid show how many different shapes are in their row and column.

If we look closely, we need 4 unique shapes in the row and column of this block.

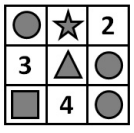
We already have a square, a triangle, and a star in the row and column.

So, we need another shape in place of B. Thus, options a and d are eliminated.

B will be replaced with a circle.

A has 2 unique shapes in its row and column: circle and star.

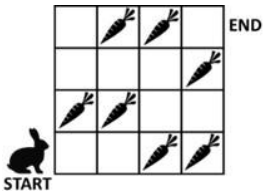
Thus, A will be replaced with 2.

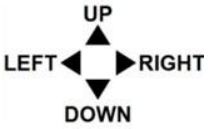


Thus, option c is the correct answer.

Chapter 14: The Surajkund Fair

1. **If the rabbit can move only towards RIGHT or UP, then what is the MAXIMUM number of carrots it can collect from START to END?**



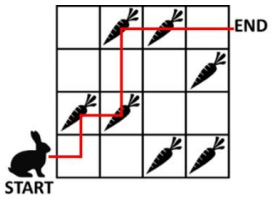


a) 4 b) 5 c) 3 d) 2

Answer: a

Solution:

The rabbit can collect a maximum of 4 carrots, as highlighted below:



Hence, the correct answer is option a.

---

2. **Which objects will the dog come across on its way if it wants to reach the boy?**

a) 

b) 

c) 

d) 

Answer: c

Solution:

The dog will come across the car and the cat while reaching the boy.

Hence, the correct answer is option c.

3. **Find the IDENTICAL half of the image given below:**

a) 

b) 

c) 

d) 

Answer: c

Solution:

We must compare each option with the question image and find the identical half.

Option a: The difference is highlighted using a red rectangle. Option a is invalid.

Option b: There is an extra whisker. Option b is invalid.

Option c: Option c is the other identical half of the question image. Option c is valid.

Option d: The eye is different from the question image. Option d is invalid.

Thus, option c is the correct answer.

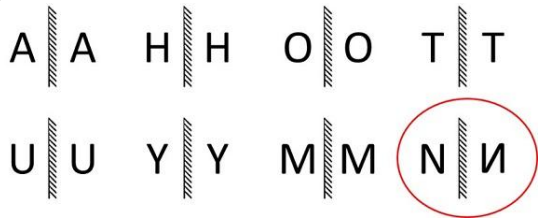
4. **Which of the following pairs of letters will NOT have the same image if they are reflected in a mirror?**
Note: *Assume that the mirror is placed vertically next to the letter*

a) A and H b) O and T c) U and Y d) M and N

Answer: d

Solution:

As highlighted in the image below, N will not have the same image when reflected in a mirror. Hence, option d is the correct answer.



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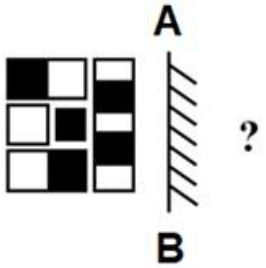
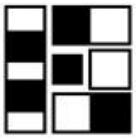
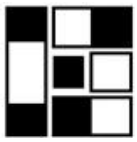
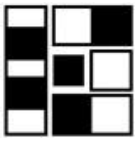
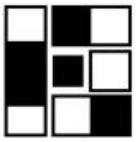
5. **If a mirror is placed along the line AB, then how will the mirror image of the image given below look like?**



a) 
b) 
c) 
d) 

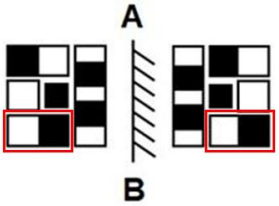
Answer: c

Solution:

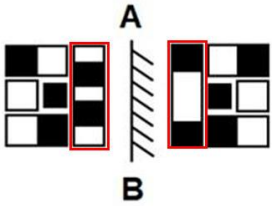
Let's compare each option with the question image.

In a mirror image, left becomes right, and right becomes left.

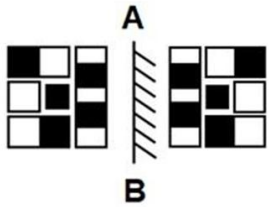
Option a: It does not match.



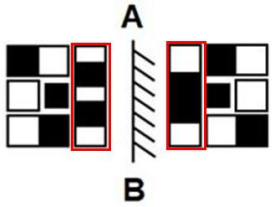
Option b: It does not match.



Option c: It follows the rule of reflection.



Option d: It does not match.



Thus, option c is the correct answer.

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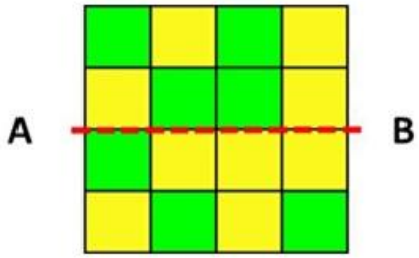
6. If the given sheet of paper is folded along the line AB, then how many pairs of same-coloured squares will overlap each other? Note: *Count two overlapped squares as 1 pair*



a) 0 b) 1 c) 2 d) 3

Answer: b

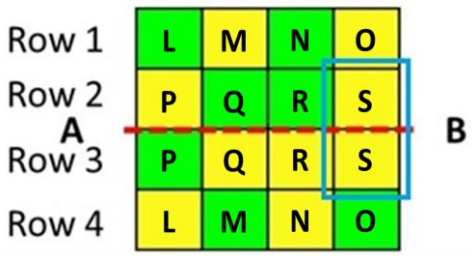
Solution:

When the given sheet of paper is folded along the line AB, then Row 1 will overlap Row 4, and Row 2 will overlap Row 3. Let's name each overlapped pair with the same letter.

Rows 2 and 3 have a pair of yellow squares (S) in the last column adjacent to each other, as highlighted in blue below.

None of the other pairs has squares of the same colour.

Hence, **only one pair of same-coloured squares will overlap each other.**



Hence, the correct answer is option b.

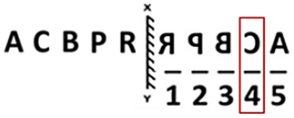
7. If the given image is reflected in a mirror along the line XY, then which letter's reflection will appear in the 4th position?

a) P b) B c) R d) C

Answer: d

Solution:

As shown below, C's reflection will appear in the 4th position. Hence, the correct answer is option d.



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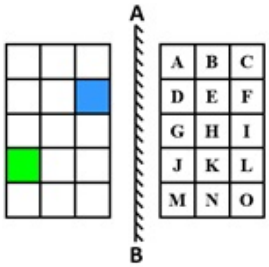
8. If the image on the right is reflected in a mirror placed along the line AB, then which letters will be reflected on the blue and green coloured blocks in the image on the left?



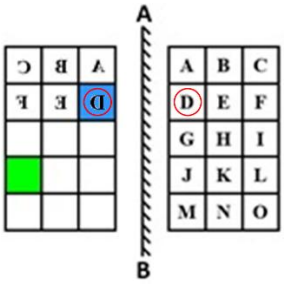
a) F and L b) D and J c) F and J d) D and L

Answer: d

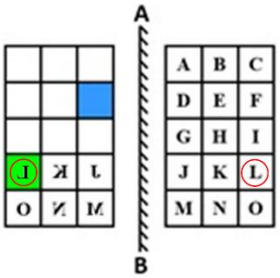
Solution:

In a mirror image, left becomes right and right becomes left.

Let's find the letters that will be reflected on the blue and green coloured blocks.



The letter D will be reflected on the blue block.

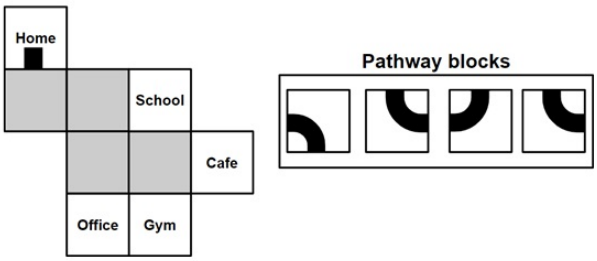


The letter L will be reflected on the green block.

Thus, the correct answer is option d.

9. Place all the pathway blocks in the image given below to form a connected pathway (indicated by black stripes) starting from Home. Which of the following destinations will the pathway lead to?

Note: *You are not allowed to rotate the pathway blocks*



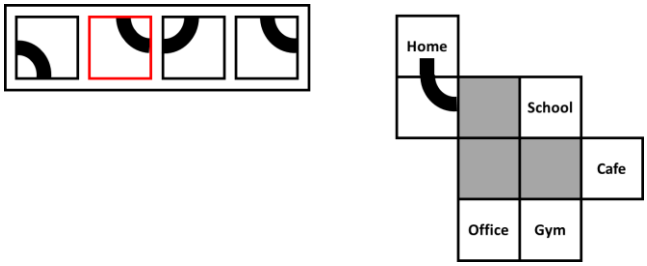
a) School b) Cafe c) Office d) Gym

Answer: a

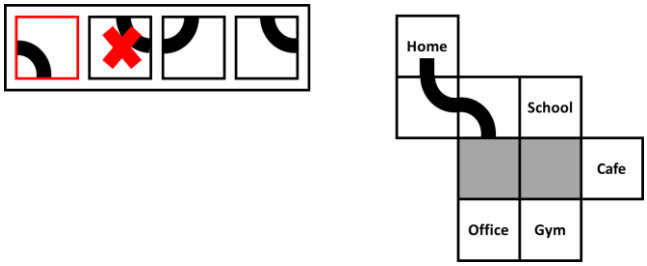
Solution:

To form a connected pathway that reaches the destination starting from home, we first need to place a pathway block directly below Home, ensuring that the pathway turns to the right. This is necessary because there are no other options for moving forward except to go right.

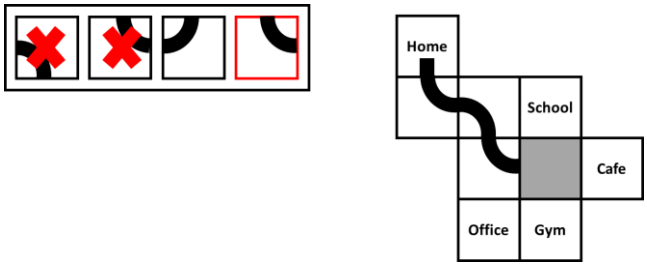
There are two similar blocks (2nd and 4th), either of them can be placed. So, we place the 2nd block.



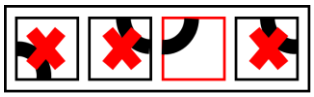
Now, the next block should be a pathway block that has a pathway section on the left. Here, we have two options: we can choose either the first block or the third block. However, since the third block reaches the top where there is no space left, it cannot be selected. Hence, the 1st pathway block should be placed next.

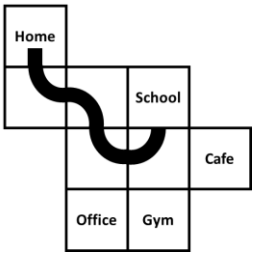


Out of the two remaining blocks (the 3rd and 4th), the 3rd block will not lead to any destination since all the destinations are to the right, while it moves to the left. Therefore, the 4th block will be placed next.



Now, by placing the remaining block in the given space, the pathway successfully leads to the School. Therefore, the answer is **option a.**





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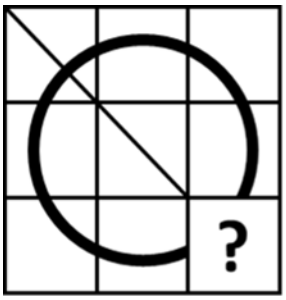
10. Which of the following options will complete the Question Image given below?



← **Question Image**

a) 

b) 

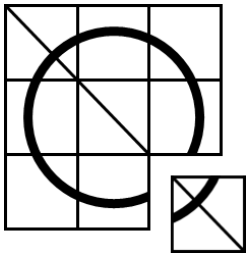
c) 

d) 

Answer: d

Solution:

Option d, when placed in place of the '?', will complete the Question Image.

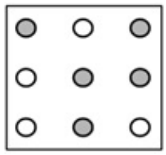


Thus, option d is the correct answer.

The Thinking Spot

Which of the following patterns from the options CAN be drawn by connecting dots in the given grid such that NO TWO dots of the same colour are directly connected?

Note: *You are not allowed to rotate any of the images*



(a)

(b)

(c)

(d)

Answer: d

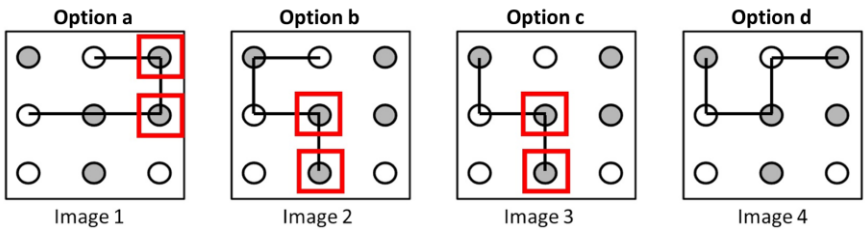
Solution:

Let's check each option:

• Options a, b, and c: Each of these patterns consists of two dots of the same colour connected, as highlighted in Images 1, 2, and 3

• Option d: This pattern is the only one that can be formed while satisfying the given condition (refer to Image 4).

Therefore, the correct answer is option d.



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