

AISSEE Mathematics

Sample Paper – 5

Duration: 60 Minutes

Maximum Marks: 150

Instructions

- This paper contains **50** Multiple Choice Questions (Single Correct Answer), modelled on the Mathematics portion of **AISSEE** (All India Sainik School Entrance Examination) for Class 6.
- Each correct answer carries **+3 marks**. There is **no negative marking** for incorrect or unattempted answers.
- Only **one** option is correct. Choose carefully.
- Syllabus level: **Class 5 (NCERT/CBSE) — Number System, Fractions, Decimals, LCM & HCF, Percentage, Profit & Loss, Ratio & Proportion, Simple Interest, Geometry, Mensuration, Data Handling.**
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited. Use the space in the question paper for rough work.

Q1. Using each of the digits 9, 7, 3, 8, 1, 5, 0 exactly once, what is the greatest 7-digit number that can be formed?

- (A) 97,85,310
- (B) 98,73,510
- (C) 98,75,310
- (D) 98,35,710

Q2. Using each of the digits 3, 6, 1, 0, 8, 5 exactly once, what is the smallest 6-digit number that can be formed?

- (A) 1,03,568
- (B) 1,35,068



(C) 1,06,358

(D) 1,30,568

Q3. What is the prime factorisation of 360?

(A) $2^2 \times 3 \times 5^2$

(B) $2^3 \times 3 \times 5$

(C) $2^2 \times 3^2 \times 5^2$

(D) $2^3 \times 3^2 \times 5$

Q4. Which of the following numbers is a perfect square?

(A) 50

(B) 64

(C) 90

(D) 120

Q5. What is the predecessor of 1,00,00,000?

(A) 1,00,00,001

(B) 99,00,000

(C) 99,99,999

(D) 1,00,01,000

Q6. In the number 5,23,46,789 (Indian number system), the digit 5 is in which place value?

(A) Ten crore

(B) Crore

(C) Ten lakh

(D) Lakh

Q7. Which of the following numbers is the largest?



- (A) 45,678
- (B) 4,56,789
- (C) 4,56,879
- (D) 4,57,890

Q8. Using BODMAS, find the value of $48 \div (6 + 2) \times 4 - 3$.

- (A) 5
- (B) 21
- (C) 24
- (D) 48

Q9. Which of the following is an improper fraction?

- (A) $\frac{7}{5}$
- (B) $\frac{3}{7}$
- (C) $\frac{2}{9}$
- (D) $\frac{5}{8}$

Q10. Find the value of $\frac{1}{3} + \frac{2}{5} + \frac{1}{15}$.

- (A) $\frac{2}{5}$
- (B) $\frac{3}{5}$
- (C) $\frac{4}{5}$
- (D) 1

Q11. Ravi reads $\frac{2}{5}$ of his 200-page book on Monday and $\frac{3}{10}$ of it on Tuesday. How many pages are still remaining?

- (A) 40



- (B) 60
- (C) 80
- (D) 100

Q12. What is the reciprocal of $\frac{4}{7}$?

- (A) $\frac{4}{7}$
- (B) $-\frac{4}{7}$
- (C) $\frac{1}{4}$
- (D) $\frac{7}{4}$

Q13. In a class of 40 students, $\frac{3}{8}$ of the students are girls. How many students are boys?

- (A) 15
- (B) 20
- (C) 25
- (D) 30

Q14. Find the value of $\frac{7}{12} \div \frac{7}{36}$.

- (A) 3
- (B) $\frac{1}{3}$
- (C) 4
- (D) $\frac{49}{432}$

Q15. Convert $\frac{7}{20}$ into a decimal.

- (A) 0.7
- (B) 3.5
- (C) 0.075



(D) 0.35

Q16. Round off 4.376 to the nearest tenth.

(A) 4.3

(B) 4.4

(C) 4.38

(D) 4

Q17. What percentage is 45 of 60?

(A) 45%

(B) 60%

(C) 75%

(D) 80%

Q18. A student scores 180 marks and passes the examination with 36 marks to spare over the pass mark. If the pass mark is 40% of the total marks, what are the total marks in the examination?

(A) 360

(B) 300

(C) 400

(D) 450

Q19. Two articles are sold at Rs. 600 each. The first is sold at 20% profit and the second at 20% loss. What is the net result of the two transactions?

(A) No profit, no loss

(B) Loss of Rs. 50

(C) Profit of Rs. 50

(D) Loss of Rs. 100



- Q20.** An article is marked at Rs. 1200. If it is sold at 15% profit on a cost price of Rs. 800, what is the discount given?
- (A) Rs. 180
(B) Rs. 200
(C) Rs. 240
(D) Rs. 280
- Q21.** A shopkeeper allows a trade discount of 20% and still gains 20% on the cost price of Rs. 600. What is the marked price?
- (A) Rs. 720
(B) Rs. 800
(C) Rs. 900
(D) Rs. 1000
- Q22.** Goods costing Rs. 450 are sold at a loss of 20%. What is the selling price?
- (A) Rs. 360
(B) Rs. 380
(C) Rs. 400
(D) Rs. 420
- Q23.** An article costs Rs. 1400 and is sold for Rs. 1260. What is the loss?
- (A) Rs. 100
(B) Rs. 120
(C) Rs. 130
(D) Rs. 140
- Q24.** Find the HCF of 36 and 54.
- (A) 6
(B) 9



(C) 18

(D) 36

Q25. Find the LCM of 8, 12, and 16.

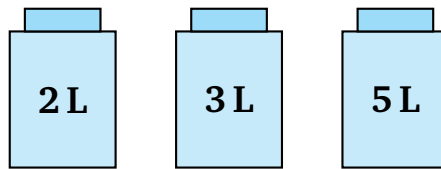
(A) 24

(B) 48

(C) 96

(D) 192

Q26. A milkman has milk packets of 2 L, 3 L, and 5 L as shown below. What is the minimum total quantity (in litres) of milk that can be exactly distributed into equal amounts using each packet size?



(A) 30 L

(B) 15 L

(C) 10 L

(D) 6 L

Q27. Two ribbons of lengths 180 cm and 120 cm are to be cut into equal pieces of the maximum possible length with no leftover. What is the maximum length of each piece?

(A) 20 cm

(B) 30 cm

(C) 40 cm

(D) 60 cm

Q28. What is the smallest number that is exactly divisible by 4, 6, 9, and 12?

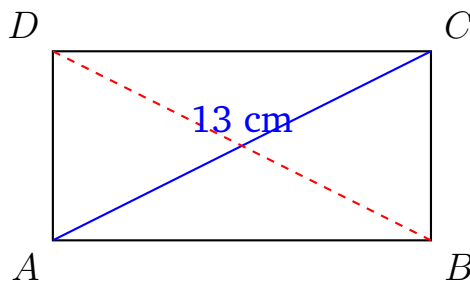


- (A) 12
- (B) 24
- (C) 36
- (D) 72

Q29. Two angles are supplementary. One angle is twice the other. What is the measure of the larger angle?

- (A) 60°
- (B) 80°
- (C) 100°
- (D) 120°

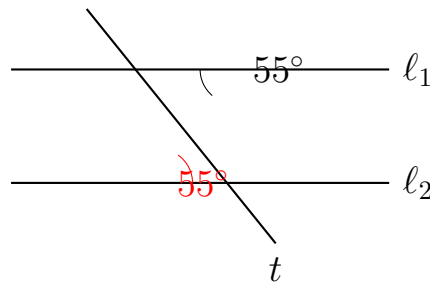
Q30. In the rectangle shown below, both diagonals are drawn and one diagonal measures 13 cm. What is the length of the other diagonal?



- (A) 6.5 cm
- (B) 7 cm
- (C) 13 cm
- (D) 26 cm

Q31. In the figure below, two parallel lines are cut by a transversal. If one of the alternate interior angles is 55° , what is the measure of the corresponding angle on the same side?





- (A) 55°
- (B) 70°
- (C) 125°
- (D) 135°

Q32. What is the measure of each interior angle of a regular hexagon?

- (A) 60°
- (B) 120°
- (C) 108°
- (D) 150°

Q33. A triangle has angles of 90° and 45° . What type of triangle is it?

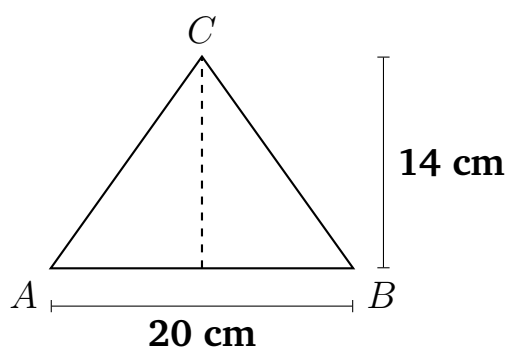
- (A) Equilateral triangle
- (B) Isosceles triangle only
- (C) Right isosceles triangle
- (D) Scalene triangle

Q34. An angle and its complement are in the ratio 3 : 2. What is the measure of the smaller angle?

- (A) 54°
- (B) 36°
- (C) 30°
- (D) 45°



Q35. Find the area of the triangle shown below.

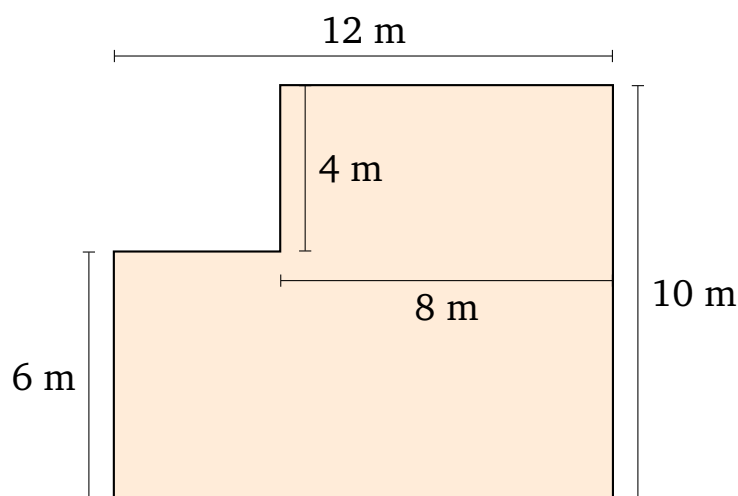


- (A) 100 cm^2
- (B) 120 cm^2
- (C) 130 cm^2
- (D) 140 cm^2

Q36. A rectangle has length 25 cm and breadth 15 cm. What is its perimeter?

- (A) 80 cm
- (B) 375 cm
- (C) 70 cm
- (D) 40 cm

Q37. The figure below shows an L-shaped room. Find its area.

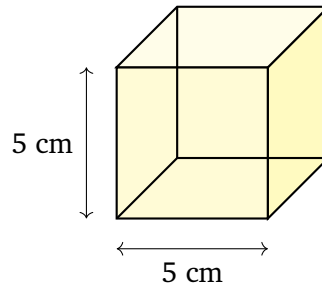


- (A) 72 m^2



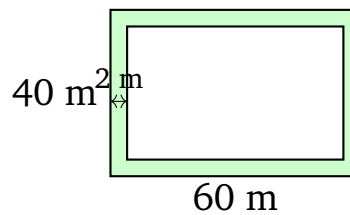
- (B) 84 m^2
- (C) 96 m^2
- (D) 108 m^2

Q38. Find the total surface area of the cube shown below.



- (A) 25 cm^2
- (B) 150 cm^2
- (C) 125 cm^3
- (D) 600 cm^2

Q39. A rectangular garden measures $60 \text{ m} \times 40 \text{ m}$. A uniform path of width 2 m runs all around the inside of the garden. What is the area of the path?



- (A) 200 m^2
- (B) 280 m^2
- (C) 320 m^2
- (D) 384 m^2

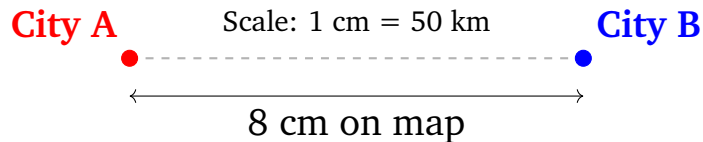
Q40. A floor measures $10 \text{ m} \times 8 \text{ m}$. If a carpet of width 2 m is used to cover the entire floor, what length of carpet is needed?

- (A) 40 m



- (B) 20 m
- (C) 80 m
- (D) 16 m

Q41. On the map below, the scale is 1 cm = 50 km. Two cities are 8 cm apart on the map. What is the actual distance between them?



- (A) 200 km
- (B) 400 km
- (C) 800 km
- (D) 4000 km

Q42. A class has 56 students. The ratio of boys to girls is 3 : 4. How many girls are there?

- (A) 24
- (B) 28
- (C) 32
- (D) 36

Q43. 15 men can complete a job in 12 days. How many days will 9 men take to complete the same job?

- (A) 20
- (B) 18
- (C) 15
- (D) 24

Q44. If 1 item costs Rs. 84, what is the cost of 7 such items?



- (A) Rs. 294
- (B) Rs. 420
- (C) Rs. 504
- (D) Rs. 588

Q45. A car covers 90 km in 1.5 hours. At the same speed, how long will it take to cover 270 km?

- (A) 3 hours
- (B) 4.5 hours
- (C) 6 hours
- (D) 9 hours

Q46. Find the amount when a principal of Rs. 3500 is invested at 6% per annum simple interest for 3 years.

- (A) Rs. 630
- (B) Rs. 3,630
- (C) Rs. 4,130
- (D) Rs. 4,500

Q47. The simple interest on a sum of money is Rs. 2800 at a rate of 10% per annum for 4 years. Find the principal.

- (A) Rs. 7,000
- (B) Rs. 5,600
- (C) Rs. 2,800
- (D) Rs. 1,400

Q48. The dataset is: 10, 20, 20, 30, 20, 40, 30, 20, 10. What is the mode?

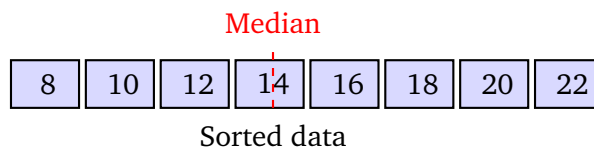
- (A) 10
- (B) 30



(C) 40

(D) 20

Q49. Find the median of the following data set: 14, 8, 22, 16, 10, 18, 12, 20.



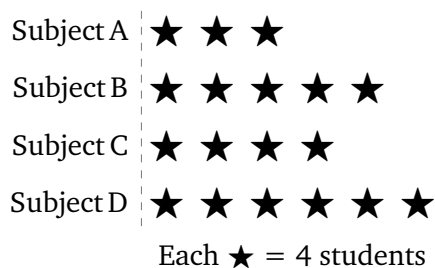
(A) 14

(B) 16

(C) 15

(D) 17

Q50. The pictograph below shows the number of students who like different subjects. Each symbol (★) represents 4 students. Which subject is the most popular?



(A) Subject A

(B) Subject D

(C) Subject B

(D) Subject C



Detailed Solutions**Solution****Concept — Greatest Number Formation:**

To form the greatest number, arrange digits in descending order from left to right. Use the largest digit first.

Solution:

Digits available: 9, 7, 3, 8, 1, 5, 0

Arranging in descending order: 9, 8, 7, 5, 3, 1, 0

Greatest 7-digit number = **98,75,310**

Why other options are wrong:

- Q1.**
- **Option A:** 97,85,310 — has 7 in the second place instead of 8, which is smaller.
 - **Option B:** 98,73,510 — digits are not in descending order (3 before 5).
 - **Option C:** Correct answer.
 - **Option D:** 98,35,710 — places 3 before 5 and 7, giving a smaller number.

Final Answer: Greatest number = 98,75,310 $\Rightarrow$ **(C)**

Answer: (C) [↑ Go back to Q 1](#)

Solution**Concept — Smallest Number Formation:**

To form the smallest number, place the smallest non-zero digit first, then arrange remaining digits in ascending order.

Solution:

Digits available: 3, 6, 1, 0, 8, 5

Smallest non-zero digit = 1 (place in the highest position)

Remaining digits in ascending order: 0, 3, 5, 6, 8

Smallest 6-digit number = **1,03,568**

Why other options are wrong:

- Q2.**
- **Option A:** Correct answer.
 - **Option B:** 1,35,068 — places 3 and 5 before 0, making it larger.
 - **Option C:** 1,06,358 — places 6 before 3, not in ascending order.
 - **Option D:** 1,30,568 — places 3 before 0 making it larger than 1,03,568.

Final Answer: Smallest 6-digit number = 1,03,568 $\Rightarrow$ **(A)**



Answer: (A) [↑ Go back to Q 2](#)

Solution

Concept — Prime Factorisation:

Express the number as a product of prime numbers using a factor tree or repeated division.

Solution:

$$360 \div 2 = 180$$

$$180 \div 2 = 90$$

$$90 \div 2 = 45$$

$$45 \div 3 = 15$$

$$15 \div 3 = 5$$

$$5 \div 5 = 1$$

$$\therefore 360 = 2^3 \times 3^2 \times 5$$

Why other options are wrong:

- Q3.**
- **Option A:** $2^2 \times 3 \times 5^2 = 4 \times 3 \times 25 = 300 \neq 360$.
 - **Option B:** $2^3 \times 3 \times 5 = 8 \times 3 \times 5 = 120 \neq 360$.
 - **Option C:** $2^2 \times 3^2 \times 5^2 = 4 \times 9 \times 25 = 900 \neq 360$.
 - **Option D:** Correct answer.

Final Answer: $360 = 2^3 \times 3^2 \times 5 \Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 3](#)

Solution

Concept — Perfect Squares:

A perfect square is a number that is the square of an integer. Check each option.

Solution:

$$\sqrt{50} \approx 7.07 \text{ (not an integer)}$$

$$\sqrt{64} = 8 \text{ (integer!)} \Rightarrow \mathbf{64 \text{ is a perfect square } (8^2 = 64)}$$

$$\sqrt{90} \approx 9.49 \text{ (not an integer)}$$

$$\sqrt{120} \approx 10.95 \text{ (not an integer)}$$

Why other options are wrong:

- Q4.**
- **Option A:** 50 is not a perfect square ($7^2 = 49$, $8^2 = 64$).
 - **Option B:** Correct answer ($8^2 = 64$).
 - **Option C:** 90 is not a perfect square ($9^2 = 81$, $10^2 = 100$).



- **Option D:** 120 is not a perfect square ($10^2 = 100$, $11^2 = 121$).

Final Answer: $64 = 8^2$ is a perfect square $\Rightarrow$ **(B)**

Answer: (B) [↑ Go back to Q 4](#)

Solution

Concept — Predecessor of a Number:

The predecessor of a number is the number that comes just before it, i.e., the given number minus 1.

Solution:

Predecessor of 1,00,00,000 = $1,00,00,000 - 1 = 99,99,999$

Why other options are wrong:

- Q5.**
- **Option A:** 1,00,00,001 is the *successor* of 1,00,00,000, not the predecessor.
 - **Option B:** 99,00,000 is much smaller; it skips many numbers.
 - **Option C:** Correct answer.
 - **Option D:** 1,00,01,000 is greater than 1,00,00,000.

Final Answer: Predecessor = 99,99,999 $\Rightarrow$ **(C)**

Answer: (C) [↑ Go back to Q 5](#)

Solution

Concept — Indian Place Value System:

In the Indian system, periods (from right) are: ones, thousands, lakhs, crores. Each crore period has ones and tens.

Solution:

Number: 5,23,46,789

Place values from right: 9(ones), 8(tens), 7(hundreds), 6(thousands), 4(ten-thousands), 3(lakhs), 2(ten-lakhs), 3(crores)... wait, let us recount:

5|23|46|789

Positions: 789 = ones period; 46 = thousands; 23 = lakhs; 5 = crores.

So 5 is in the **ten-crore** place? No — 5 is a single digit in the crore period at the highest position. With 9 digits: position 9 from right = ten-crore place. 5, 23, 46, 789 has 9 digits $\Rightarrow$ digit 5 is in the **ten-crore** place.

Why other options are wrong:

- Q6.**
- **Option A:** Correct answer — 5 is in the ten-crore place.



- **Option B:** Crore place holds the digit 2 (i.e., 2,00,00,000 component is 2 crores).
- **Option C:** Ten-lakh place holds the digit 3.
- **Option D:** Lakh place holds the digit 4.

Final Answer: Digit 5 is in the Ten-crore place $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 6](#)

Solution

Concept — Comparing Numbers:

First compare the number of digits; more digits means larger. Among equal-digit numbers, compare digit by digit from the left.

Solution:

Option A: 45,678 (5 digits)

Options B, C, D: all 6-digit numbers, so all are larger than A.

Compare B, C, D from left:

B = 4,56,789; C = 4,56,879; D = 4,57,890

All start with 4,5_. Third digit: B=6, C=6, D=7. Since $7 > 6$, **D is the largest.**

Why other options are wrong:

- Q7.**
- **Option A:** Only 5 digits, smallest of all.
 - **Option B:** $4,56,789 < 4,57,890$ (third significant digit $6 < 7$).
 - **Option C:** $4,56,879 < 4,57,890$ (same reason).
 - **Option D:** Correct answer.

Final Answer: Largest number = 4,57,890 $\Rightarrow$ (D)

Answer: (D) [↑ Go back to Q 7](#)

Solution

Concept — BODMAS Rule:

Order of operations: Brackets, Of, Division, Multiplication, Addition, Subtraction.

Solution:

$$48 \div (6 + 2) \times 4 - 3$$

Step 1 (Brackets): $6 + 2 = 8$

Expression becomes: $48 \div 8 \times 4 - 3$

Step 2 (Division): $48 \div 8 = 6$



Expression becomes: $6 \times 4 - 3$

Step 3 (Multiplication): $6 \times 4 = 24$

Expression becomes: $24 - 3$

Step 4 (Subtraction): $24 - 3 = 21$

Why other options are wrong:

- Q8.**
- **Option A:** 5 — result of ignoring brackets and doing $48 \div 6 + 2 \times 4 - 3$ — some wrong order.
 - **Option B:** Correct answer.
 - **Option C:** 24 — forgot to subtract 3 at the end.
 - **Option D:** 48 — original number, no operation performed.

Final Answer: $48 \div (6 + 2) \times 4 - 3 = 21 \Rightarrow \text{(B)}$

Answer: (B) [↑ Go back to Q 8](#)

Solution

Concept — Types of Fractions:

An *improper fraction* has its numerator greater than or equal to its denominator. A *proper fraction* has numerator less than denominator.

Solution:

Check each: $\frac{7}{5}$: numerator $7 >$ denominator $5 \Rightarrow$ **improper fraction**.

$\frac{3}{7}, \frac{2}{9}, \frac{5}{8}$: numerator $<$ denominator in each case $\Rightarrow$ proper fractions.

Why other options are wrong:

- Q9.**
- **Option A:** Correct answer — $\frac{7}{5}$ is improper.
 - **Option B:** $\frac{3}{7}$ is a proper fraction ($3 < 7$).
 - **Option C:** $\frac{2}{9}$ is a proper fraction ($2 < 9$).
 - **Option D:** $\frac{5}{8}$ is a proper fraction ($5 < 8$).

Final Answer: $\frac{7}{5}$ is an improper fraction $\Rightarrow \text{(A)}$

Answer: (A) [↑ Go back to Q 9](#)

Solution

Concept — Addition of Fractions:

To add fractions with different denominators, find the LCM of denominators and convert each fraction.

Solution:



LCM of 3, 5, 15 = 15

$$\frac{1}{3} = \frac{5}{15}, \quad \frac{2}{5} = \frac{6}{15}, \quad \frac{1}{15} = \frac{1}{15}$$

$$\text{Sum} = \frac{5 + 6 + 1}{15} = \frac{12}{15} = \frac{4}{5}$$

Why other options are wrong:

- Q10.**
- **Option A:** $\frac{2}{5} = \frac{6}{15}$ — this is only the second term, not the full sum.
 - **Option B:** $\frac{3}{5} = \frac{9}{15}$ — incorrect sum.
 - **Option C:** Correct answer.
 - **Option D:** $1 = \frac{15}{15}$ — overcounts; sum is only $\frac{12}{15}$.

Final Answer: $\frac{1}{3} + \frac{2}{5} + \frac{1}{15} = \frac{4}{5} \Rightarrow \text{(C)}$

Answer: (C) [↑ Go back to Q 10](#)

Solution

Concept — Fractions of a Quantity:

Find pages read each day, then subtract from total to find remaining pages.

Solution:

Total pages = 200

$$\text{Pages read Monday} = \frac{2}{5} \times 200 = 80 \text{ pages}$$

$$\text{Pages read Tuesday} = \frac{3}{10} \times 200 = 60 \text{ pages}$$

$$\text{Total pages read} = 80 + 60 = 140$$

$$\text{Remaining pages} = 200 - 140 = 60$$

Why other options are wrong:

- Q11.**
- **Option A:** 40 — incorrect subtraction ($200 - 160 = 40$ is wrong).
 - **Option B:** Correct answer.
 - **Option C:** 80 — this is only the pages read on Monday.
 - **Option D:** 100 — half the book; incorrectly assumes equal fractions.

Final Answer: Remaining pages = 60 $\Rightarrow \text{(B)}$

Answer: (B) [↑ Go back to Q 11](#)

Solution

Concept — Reciprocal of a Fraction:

The reciprocal of $\frac{a}{b}$ is $\frac{b}{a}$ (numerator and denominator are swapped). Their product equals 1.



Solution:

$$\text{Reciprocal of } \frac{4}{7} = \frac{7}{4}$$

$$\text{Verification: } \frac{4}{7} \times \frac{7}{4} = 1 \checkmark$$

Why other options are wrong:

- Q12.**
- **Option A:** $\frac{4}{7}$ — same as the original fraction, not its reciprocal.
 - **Option B:** $-\frac{4}{7}$ — negative of the original; reciprocal has no sign change.
 - **Option C:** $\frac{1}{4}$ — reciprocal of 4, not of $\frac{4}{7}$.
 - **Option D:** Correct answer.

Final Answer: Reciprocal of $\frac{4}{7} = \frac{7}{4} \Rightarrow$ **(D)****Answer: (D)** [↑ Go back to Q 12](#)**Solution****Concept — Fractions of a Group:**

Find the number of girls using the fraction, then subtract from total to get boys.

Solution:

$$\text{Total students} = 40$$

$$\text{Girls} = \frac{3}{8} \times 40 = 15$$

$$\text{Boys} = 40 - 15 = 25$$

Why other options are wrong:

- Q13.**
- **Option A:** 15 — this is the number of *girls*, not boys.
 - **Option B:** 20 — result of assuming boys = girls = half the class.
 - **Option C:** Correct answer.
 - **Option D:** 30 — incorrect; $\frac{3}{8}$ of 40 is 15 girls, not 10.

Final Answer: Number of boys = 25 $\Rightarrow$ **(C)****Answer: (C)** [↑ Go back to Q 13](#)**Solution****Concept — Division of Fractions:**To divide by a fraction, multiply by its reciprocal: $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c}$.**Solution:**

$$\begin{aligned} \frac{7}{12} \div \frac{7}{36} &= \frac{7}{12} \times \frac{36}{7} \\ &= \frac{7 \times 36}{12 \times 7} = \frac{36}{12} = 3 \end{aligned}$$



Why other options are wrong:

- Q14.**
- **Option A:** Correct answer.
 - **Option B:** $\frac{1}{3}$ — result of inverting the wrong fraction (dividing divisor by dividend).
 - **Option C:** 4 — incorrect arithmetic.
 - **Option D:** $\frac{49}{432}$ — result of multiplying instead of dividing.

Final Answer: $\frac{7}{12} \div \frac{7}{36} = 3 \Rightarrow \text{(A)}$

Answer: (A) [↑ Go back to Q 14](#)

Solution

Concept — Fraction to Decimal Conversion:

Convert the fraction to an equivalent fraction with denominator 100, or divide numerator by denominator.

Solution:

$$\frac{7}{20} = \frac{7 \times 5}{20 \times 5} = \frac{35}{100} = 0.35$$

Alternatively: $7 \div 20 = 0.35$

Why other options are wrong:

- Q15.**
- **Option A:** 0.7 — result of computing $7 \div 10$ instead of $7 \div 20$.
 - **Option B:** 3.5 — result of computing $7 \div 2$ instead of $7 \div 20$.
 - **Option C:** 0.075 — incorrect; $\frac{7}{20} \neq 0.075$.
 - **Option D:** Correct answer.

Final Answer: $\frac{7}{20} = 0.35 \Rightarrow \text{(D)}$

Answer: (D) [↑ Go back to Q 15](#)

Solution

Concept — Rounding Decimals:

To round to the nearest tenth, look at the hundredths digit. If it is 5 or more, round up; otherwise round down.

Solution:

Number: 4.376

Tenths digit = 3; Hundredths digit = 7

Since $7 \geq 5$, round up the tenths digit: $3 \rightarrow 4$

Rounded value = 4.4



Why other options are wrong:

- Q16.**
- **Option A:** 4.3 — result of rounding down, but hundredths digit is 7 (should round up).
 - **Option B:** Correct answer.
 - **Option C:** 4.38 — rounded to nearest hundredth, not tenth.
 - **Option D:** 4 — rounded to nearest unit, not tenth.

Final Answer: 4.376 rounded to nearest tenth = 4.4 $\Rightarrow$ **(B)**

Answer: (B) [↑ Go back to Q 16](#)

Solution

Concept — Percentage of a Number:

$$\text{Percentage} = \frac{\text{Part}}{\text{Whole}} \times 100$$

Solution:

$$\frac{45}{60} \times 100 = \frac{4500}{60} = 75\%$$

Why other options are wrong:

- Q17.**
- **Option A:** 45% — mistakenly uses the part value as the percentage.
 - **Option B:** 60% — mistakenly uses the whole value as the percentage.
 - **Option C:** Correct answer.
 - **Option D:** 80% — result of computing $\frac{60}{45} \times 60 = \text{wrong}$.

Final Answer: $\frac{45}{60} \times 100 = 75\% \Rightarrow$ **(C)**

Answer: (C) [↑ Go back to Q 17](#)

Solution

Concept — Percentage and Total Marks:

Pass mark = Score – spare marks. Total marks = Pass mark $\div$ Pass percentage.

Solution:

Score = 180; Spare marks over pass = 36

Pass mark = 180 – 36 = 144

Pass mark = 40% of Total marks

$$\Rightarrow 144 = \frac{40}{100} \times \text{Total}$$

$$\Rightarrow \text{Total} = \frac{144 \times 100}{40} = 360$$

Why other options are wrong:

- Q18.**
- **Option A:** Correct answer.



- **Option B:** 300 — results from computing $180 \div 0.6$ (using 60% instead of 40%).
- **Option C:** 400 — results from computing $160 \div 0.4$ with wrong pass marks.
- **Option D:** 450 — incorrect; 40% of 450 = 180, not the pass mark 144.

Final Answer: Total marks = 360 $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 18](#)

Solution

Concept — Profit and Loss on Two Articles:

When two articles are sold at the same SP but one at $x\%$ profit and other at $x\%$ loss, there is always a net loss of $\left(\frac{x}{10}\right)^2\%$.

Solution:

SP of each article = Rs. 600

Article 1 (20% profit): $CP_1 = \frac{600}{1.20} = \text{Rs. } 500$

Article 2 (20% loss): $CP_2 = \frac{600}{0.80} = \text{Rs. } 750$

Total CP = $500 + 750 = \text{Rs. } 1250$

Total SP = $600 + 600 = \text{Rs. } 1200$

Net Loss = $1250 - 1200 = \text{Rs. } 50$

Why other options are wrong:

- Q19.**
- **Option A:** No profit/no loss — incorrect; there is always a loss in this case.
 - **Option B:** Correct answer.
 - **Option C:** Profit of Rs. 50 — wrong sign; it is a loss, not profit.
 - **Option D:** Loss of Rs. 100 — overestimates the loss.

Final Answer: Net loss = Rs. 50 $\Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 19](#)

Solution

Concept — Discount Calculation:

Discount = Marked Price – Selling Price. SP at profit = $CP \times (1 + \text{profit}\%)$.

Solution:

CP = Rs. 800; Profit = 15%

SP = $800 \times 1.15 = \text{Rs. } 920$

Marked Price = Rs. 1200



$$\text{Discount} = 1200 - 920 = \text{Rs. } 280$$

Why other options are wrong:

- Q20.**
- **Option A:** Rs. 180 — uses 20% of 900 incorrectly.
 - **Option B:** Rs. 200 — incorrect computation of SP or discount.
 - **Option C:** Rs. 240 — uses 20% discount on 1200 (gets 960 SP), not the correct SP.
 - **Option D:** Correct answer.

Final Answer: Discount = Rs. 280 $\Rightarrow$ (D)

Answer: (D) [↑ Go back to Q 20](#)

Solution

Concept — Marked Price with Discount and Profit:

$$SP = CP \times (1 + \text{gain}\%); MP \times (1 - \text{discount}\%) = SP.$$

Solution:

$$CP = \text{Rs. } 600; \text{Gain} = 20\%$$

$$SP = 600 \times 1.20 = \text{Rs. } 720$$

$$\text{Discount} = 20\%, \text{ so } MP \times 0.80 = 720$$

$$MP = \frac{720}{0.80} = \text{Rs. } 900$$

Why other options are wrong:

- Q21.**
- **Option A:** Rs. 720 — this is the selling price, not the marked price.
 - **Option B:** Rs. 800 — incorrect; $800 \times 0.8 = 640 \neq 720$.
 - **Option C:** Correct answer.
 - **Option D:** Rs. 1000 — incorrect; $1000 \times 0.8 = 800 \neq 720$.

Final Answer: Marked Price = Rs. 900 $\Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 21](#)

Solution

Concept — Selling Price at a Loss:

$$SP = CP \times \left(1 - \frac{\text{loss}\%}{100}\right)$$

Solution:

$$CP = \text{Rs. } 450; \text{Loss} = 20\%$$

$$SP = 450 \times \left(1 - \frac{20}{100}\right) = 450 \times 0.80 = \text{Rs. } 360$$



Why other options are wrong:

- Q22.**
- **Option A:** Correct answer.
 - **Option B:** Rs. 380 — no standard calculation leads to this.
 - **Option C:** Rs. 400 — corresponds to a loss of only $\frac{50}{450} \approx 11\%$, not 20%.
 - **Option D:** Rs. 420 — corresponds to a loss of only $\frac{30}{450} \approx 6.7\%$, not 20%.

Final Answer: SP = Rs. 360 $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 22](#)

Solution

Concept — Calculating Loss:

Loss = Cost Price – Selling Price (when CP > SP).

Solution:

CP = Rs. 1400; SP = Rs. 1260

Loss = 1400 – 1260 = Rs. 140

Why other options are wrong:

- Q23.**
- **Option A:** Rs. 100 — incorrect subtraction.
 - **Option B:** Rs. 120 — incorrect subtraction.
 - **Option C:** Rs. 130 — incorrect subtraction.
 - **Option D:** Correct answer.

Final Answer: Loss = Rs. 140 $\Rightarrow$ (D)

Answer: (D) [↑ Go back to Q 23](#)

Solution

Concept — HCF (Highest Common Factor):

Find prime factors of both numbers and multiply the common prime factors with their lowest powers.

Solution:

$$36 = 2^2 \times 3^2$$

$$54 = 2 \times 3^3$$

$$\text{HCF} = 2^1 \times 3^2 = 2 \times 9 = 18$$

$$\text{Verification: } 36 \div 18 = 2 \checkmark; 54 \div 18 = 3 \checkmark$$

Why other options are wrong:

- Q24.**
- **Option A:** 6 — is a common factor but not the *highest*.



- **Option B:** 9 — is a common factor but not the highest ($18 > 9$ also divides both).
- **Option C:** Correct answer.
- **Option D:** 36 — does not divide 54 evenly ($54 \div 36 = 1.5$).

Final Answer: $\text{HCF}(36, 54) = 18 \Rightarrow \text{(C)}$

Answer: (C) [↑ Go back to Q 24](#)

Solution

Concept — LCM (Least Common Multiple):

Find prime factors and take each with its highest power.

Solution:

$$8 = 2^3; \quad 12 = 2^2 \times 3; \quad 16 = 2^4$$

$$\text{LCM} = 2^4 \times 3 = 16 \times 3 = 48$$

$$\text{Verification: } 48 \div 8 = 6 \checkmark; 48 \div 12 = 4 \checkmark; 48 \div 16 = 3 \checkmark$$

Why other options are wrong:

- Q25.**
- **Option A:** 24 — not divisible by 16 ($24 \div 16 = 1.5$).
 - **Option B:** Correct answer.
 - **Option C:** 96 — is a common multiple but not the *least*.
 - **Option D:** 192 — is a common multiple but not the *least*.

Final Answer: $\text{LCM}(8, 12, 16) = 48 \Rightarrow \text{(B)}$

Answer: (B) [↑ Go back to Q 25](#)

Solution

Concept — LCM in Real Life:

To find the minimum quantity that can be exactly measured using different-sized containers, find the LCM of their capacities.

Solution:

Packet sizes: 2 L, 3 L, 5 L

$$2 = 2; \quad 3 = 3; \quad 5 = 5$$

$$\text{LCM}(2, 3, 5) = 2 \times 3 \times 5 = 30 \text{ L}$$

At 30 L: uses $30 \div 2 = 15$ packets of 2 L, $30 \div 3 = 10$ packets of 3 L, $30 \div 5 = 6$ packets of 5 L. ✓

Why other options are wrong:



- Q26.**
- **Option A:** Correct answer.
 - **Option B:** 15 L — not divisible by 2 ($15 \div 2 = 7.5$), so 2 L packets won't fit exactly.
 - **Option C:** 10 L — not divisible by 3 ($10 \div 3 \approx 3.33$).
 - **Option D:** 6 L — not divisible by 5 ($6 \div 5 = 1.2$).

Final Answer: Minimum = LCM(2, 3, 5) = 30 L $\Rightarrow$ **(A)**

Answer: (A) [↑ Go back to Q 26](#)

Solution

Concept — HCF in Real Life:

To cut lengths into equal pieces of maximum length with no waste, find the HCF of the lengths.

Solution:

Ribbon lengths: 180 cm and 120 cm

$$180 = 2^2 \times 3^2 \times 5$$

$$120 = 2^3 \times 3 \times 5$$

$$\text{HCF} = 2^2 \times 3 \times 5 = 4 \times 3 \times 5 = \mathbf{60 \text{ cm}}$$

Verification: $180 \div 60 = 3$ pieces $\checkmark$; $120 \div 60 = 2$ pieces $\checkmark$

Why other options are wrong:

- Q27.**
- **Option A:** 20 cm — is a common factor but not the *maximum*.
 - **Option B:** 30 cm — is a common factor but $60 > 30$ also works.
 - **Option C:** 40 cm — does not divide 180 exactly ($180 \div 40 = 4.5$).
 - **Option D:** Correct answer.

Final Answer: Maximum piece length = HCF(180, 120) = 60 cm $\Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 27](#)

Solution

Concept — LCM for Divisibility:

The smallest number divisible by all given numbers is their LCM.

Solution:

$$4 = 2^2; \quad 6 = 2 \times 3; \quad 9 = 3^2; \quad 12 = 2^2 \times 3$$

$$\text{LCM} = 2^2 \times 3^2 = 4 \times 9 = \mathbf{36}$$

Verification: $36 \div 4 = 9$ $\checkmark$; $36 \div 6 = 6$ $\checkmark$; $36 \div 9 = 4$ $\checkmark$; $36 \div 12 = 3$ $\checkmark$



Why other options are wrong:

- Q28.**
- **Option A:** 12 — not divisible by 9 ($12 \div 9 \approx 1.33$).
 - **Option B:** 24 — not divisible by 9 ($24 \div 9 \approx 2.67$).
 - **Option C:** Correct answer.
 - **Option D:** 72 — divisible by all, but not the *smallest*; $\text{LCM} = 36$.

Final Answer: Smallest number = $\text{LCM}(4, 6, 9, 12) = 36 \Rightarrow \text{(C)}$

Answer: (C) [↑ Go back to Q 28](#)

Solution

Concept — Supplementary Angles:

Two supplementary angles add up to 180° . Set up an equation using the given ratio.

Solution:

Let the smaller angle = x . Then the larger = $2x$.

$$x + 2x = 180^\circ$$

$$3x = 180^\circ \Rightarrow x = 60^\circ$$

$$\text{Larger angle} = 2 \times 60^\circ = 120^\circ$$

Why other options are wrong:

- Q29.**
- **Option A:** 60° — this is the *smaller* angle.
 - **Option B:** 80° — neither angle equals 80° here.
 - **Option C:** 100° — does not satisfy $x + 2x = 180^\circ$.
 - **Option D:** Correct answer.

Final Answer: Larger angle = $120^\circ \Rightarrow \text{(D)}$

Answer: (D) [↑ Go back to Q 29](#)

Solution

Concept — Diagonals of a Rectangle:

In a rectangle, both diagonals are equal in length. This is a key property of rectangles.

Solution:

Given: one diagonal $AC = 13$ cm.

By the property of rectangles: diagonal $BD = \text{diagonal } AC = 13$ cm.

Why other options are wrong:



- Q30.**
- **Option A:** 6.5 cm — half of 13; confuses diagonal with half-diagonal.
 - **Option B:** 7 cm — no basis for this value.
 - **Option C:** Correct answer.
 - **Option D:** 26 cm — double the diagonal; incorrect.

Final Answer: Other diagonal = 13 cm $\Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 30](#)

Solution

Concept — Parallel Lines and Transversal:

When a transversal cuts two parallel lines, alternate interior angles are equal, and corresponding angles are equal.

Solution:

Given: alternate interior angle = 55° .

Corresponding angle (on the same side, same position at the other parallel line) = 55° (corresponding angles are equal when lines are parallel).

Also, alternate interior angles are equal, so both alternate interior angles = 55° .

Why other options are wrong:

- Q31.**
- **Option A:** Correct answer — corresponding angle is also 55° .
 - **Option B:** 70° — not related to 55° here.
 - **Option C:** 125° — supplement of 55° ($55 + 125 = 180$); this is a co-interior angle.
 - **Option D:** 135° — supplement of 45° ; no basis here.

Final Answer: Corresponding angle = $55^\circ \Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 31](#)

Solution

Concept — Interior Angles of a Regular Polygon:

Each interior angle of a regular n -gon = $\frac{(n-2) \times 180^\circ}{n}$.

Solution:

For a regular hexagon, $n = 6$:

$$\text{Interior angle} = \frac{(6-2) \times 180^\circ}{6} = \frac{4 \times 180^\circ}{6} = \frac{720^\circ}{6} = 120^\circ$$

Why other options are wrong:

- Q32.**
- **Option A:** 60° — interior angle of an equilateral triangle (3-gon), not



hexagon.

- **Option B:** Correct answer.
- **Option C:** 108° — interior angle of a regular pentagon (5-gon).
- **Option D:** 150° — interior angle of a regular 12-gon.

Final Answer: Each interior angle of a regular hexagon $= 120^\circ \Rightarrow$ **(B)**

Answer: (B) [↑ Go back to Q 32](#)

Solution

Concept — Types of Triangles:

The sum of angles in a triangle is 180° . A right isosceles triangle has angles 90° , 45° , 45° and two equal sides.

Solution:

Given angles: 90° and 45° .

Third angle $= 180^\circ - 90^\circ - 45^\circ = 45^\circ$.

Angles: 90° , 45° , 45° .

Since two angles are equal (45° each), it is *isosceles*. Since one angle is 90° , it is a *right triangle*. Together: **right isosceles triangle**.

Why other options are wrong:

- Q33.**
- **Option A:** Equilateral — all angles must be 60° ; not the case here.
 - **Option B:** Isosceles only — true, but incomplete; it is also a right triangle.
 - **Option C:** Correct answer — precisely right isosceles.
 - **Option D:** Scalene — all sides (and angles) different; not the case ($45^\circ = 45^\circ$).

Final Answer: Right isosceles triangle $\Rightarrow$ **(C)**

Answer: (C) [↑ Go back to Q 33](#)

Solution

Concept — Complementary Angles:

Two complementary angles sum to 90° . If they are in ratio $3 : 2$, let them be $3x$ and $2x$.

Solution:

$$3x + 2x = 90^\circ$$

$$5x = 90^\circ \Rightarrow x = 18^\circ$$

$$\text{Smaller angle} = 2x = 2 \times 18^\circ = 36^\circ$$



$$\text{Larger angle} = 3x = 3 \times 18^\circ = 54^\circ$$

Why other options are wrong:

- Q34.**
- **Option A:** 54° — the *larger* angle, not the smaller.
 - **Option B:** Correct answer.
 - **Option C:** 30° — would give other angle 60° ; ratio $60 : 30 = 2 : 1 \neq 3 : 2$.
 - **Option D:** 45° — would give other angle 45° ; ratio $1 : 1 \neq 3 : 2$.

Final Answer: Smaller angle = $36^\circ \Rightarrow$ **(B)**

Answer: (B) [↑ Go back to Q 34](#)

Solution

Concept — Area of a Triangle:

$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

Solution:

$$\text{Base} = 20 \text{ cm}; \text{Height} = 14 \text{ cm}$$

$$\text{Area} = \frac{1}{2} \times 20 \times 14 = \frac{280}{2} = 140 \text{ cm}^2$$

Why other options are wrong:

- Q35.**
- **Option A:** 100 cm^2 — uses $\frac{1}{2} \times 20 \times 10$ or wrong height.
 - **Option B:** 120 cm^2 — uses $\frac{1}{2} \times 20 \times 12$.
 - **Option C:** 130 cm^2 — uses $\frac{1}{2} \times 20 \times 13$.
 - **Option D:** Correct answer.

Final Answer: Area = $\frac{1}{2} \times 20 \times 14 = 140 \text{ cm}^2 \Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 35](#)

Solution

Concept — Perimeter of a Rectangle:

$$\text{Perimeter} = 2 \times (\text{length} + \text{breadth})$$

Solution:

$$\text{Length} = 25 \text{ cm}; \text{Breadth} = 15 \text{ cm}$$

$$\text{Perimeter} = 2 \times (25 + 15) = 2 \times 40 = 80 \text{ cm}$$

Why other options are wrong:

- Q36.**
- **Option A:** Correct answer.
 - **Option B:** 375 cm — result of computing area ($25 \times 15 = 375 \text{ cm}^2$), not perimeter.



- **Option C:** 70 cm — forgot to multiply by 2 ($25 + 15 + 30 = 70$ is wrong approach).
- **Option D:** 40 cm — only half the perimeter ($25 + 15 = 40$), forgot factor of 2.

Final Answer: Perimeter = 80 cm $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 36](#)

Solution

Concept — Area of Composite Figures:

Divide the L-shape into rectangles or subtract the missing part from the full rectangle.

Solution:

Full rectangle: $12 \text{ m} \times 10 \text{ m} = 120 \text{ m}^2$

Cut-out rectangle: $4 \text{ m} \times 6 \text{ m} = 24 \text{ m}^2$

L-shape area = $120 - 24 = 96 \text{ m}^2$

Why other options are wrong:

- Q37.**
- **Option A:** 72 m^2 — uses wrong cut-out dimensions.
 - **Option B:** 84 m^2 — incorrect; $120 - 36 = 84$ uses a 6×6 cut-out.
 - **Option C:** Correct answer.
 - **Option D:** 108 m^2 — uses a cut-out of only 12 m^2 (too small).

Final Answer: Area = $96 \text{ m}^2 \Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 37](#)

Solution

Concept — Total Surface Area of a Cube:

A cube has 6 identical square faces. Total Surface Area = $6 \times a^2$, where a is the side length.

Solution:

Side $a = 5 \text{ cm}$

TSA = $6 \times 5^2 = 6 \times 25 = 150 \text{ cm}^2$

Why other options are wrong:

- Q38.**
- **Option A:** 25 cm^2 — area of one face only; not all 6 faces.
 - **Option B:** Correct answer.
 - **Option C:** 125 cm^3 — this is the *volume* of the cube (5^3), not surface area.



- **Option D:** 600 cm^2 — uses $6 \times 100 = 600$, i.e., side = 10 cm not 5 cm.

Final Answer: Total Surface Area = $6 \times 25 = 150 \text{ cm}^2 \Rightarrow \text{(B)}$

Answer: (B) [↑ Go back to Q 38](#)

Solution

Concept — Area of a Border/Path:

Path area = Outer area – Inner area. The inner dimensions are reduced by $2 \times$ path width on each side.

Solution:

Outer dimensions: $60 \text{ m} \times 40 \text{ m}$

Path width = 2 m (runs inside)

Inner dimensions: $(60 - 2 \times 2) \times (40 - 2 \times 2) = 56 \text{ m} \times 36 \text{ m}$

Outer area = $60 \times 40 = 2400 \text{ m}^2$

Inner area = $56 \times 36 = 2016 \text{ m}^2$

Path area = $2400 - 2016 = 384 \text{ m}^2$

Why other options are wrong:

- Q39.**
- **Option A:** 200 m^2 — uses wrong inner dimensions.
 - **Option B:** 280 m^2 — subtracts only 1 m per side instead of 2 m.
 - **Option C:** 320 m^2 — uses path width of 2 m on only one pair of sides.
 - **Option D:** Correct answer.

Final Answer: Path area = $384 \text{ m}^2 \Rightarrow \text{(D)}$

Answer: (D) [↑ Go back to Q 39](#)

Solution

Concept — Length of Carpet:

Total carpet area = Floor area. $\text{Length} = \frac{\text{Floor Area}}{\text{Carpet Width}}$.

Solution:

Floor: $10 \text{ m} \times 8 \text{ m} = 80 \text{ m}^2$

Carpet width = 2 m

Length of carpet = $\frac{80}{2} = 40 \text{ m}$

Why other options are wrong:

- Q40.**
- **Option A:** Correct answer.



- **Option B:** 20 m — gives only $20 \times 2 = 40 \text{ m}^2$, covering half the floor.
- **Option C:** 80 m — equals the floor area in m^2 , not the length of carpet.
- **Option D:** 16 m — gives only $16 \times 2 = 32 \text{ m}^2$, insufficient.

Final Answer: Length of carpet needed = 40 m $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 40](#)

Solution

Concept — Map Scale and Actual Distance:

Actual distance = Map distance $\times$ Scale factor.

Solution:

Map distance = 8 cm; Scale: 1 cm = 50 km

Actual distance = $8 \times 50 = 400 \text{ km}$

Why other options are wrong:

- Q41.**
- **Option A:** 200 km — uses scale 1 cm = 25 km instead of 50 km.
 - **Option B:** Correct answer.
 - **Option C:** 800 km — uses scale 1 cm = 100 km (double the given scale).
 - **Option D:** 4000 km — uses 8×500 with wrong scale.

Final Answer: Actual distance = $8 \times 50 = 400 \text{ km} \Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 41](#)

Solution

Concept — Ratio and Proportional Division:

If ratio is $a : b$, total parts = $a + b$. Girls = $\frac{b}{a + b} \times \text{Total}$.

Solution:

Ratio boys:girls = 3 : 4; Total parts = $3 + 4 = 7$; Total students = 56

Girls = $\frac{4}{7} \times 56 = 4 \times 8 = 32$

Boys = $\frac{3}{7} \times 56 = 24$

Why other options are wrong:

- Q42.**
- **Option A:** 24 — this is the number of boys, not girls.
 - **Option B:** 28 — half of 56; assumes equal ratio.
 - **Option C:** Correct answer.
 - **Option D:** 36 — would require ratio boys:girls = $20 : 36 = 5 : 9 \neq 3 : 4$.

Final Answer: Number of girls = 32 $\Rightarrow$ (C)



Answer: (C) [↑ Go back to Q 42](#)

Solution

Concept — Inverse Proportion (Work and Time):

More workers $\Rightarrow$ fewer days (inverse proportion). Men $\times$ Days = constant.

Solution:

$$15 \text{ men} \times 12 \text{ days} = 9 \text{ men} \times d \text{ days}$$

$$d = \frac{15 \times 12}{9} = \frac{180}{9} = 20 \text{ days}$$

Why other options are wrong:

- Q43.**
- **Option A:** Correct answer.
 - **Option B:** 18 days — result of using wrong ratio.
 - **Option C:** 15 days — same as original number of men (coincidence, not a valid answer).
 - **Option D:** 24 days — uses direct proportion (wrong; should be inverse).

Final Answer: 9 men will take 20 days $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 43](#)

Solution

Concept — Direct Proportion:

If 1 item costs Rs. 84, then n items cost $n \times 84$.

Solution:

$$\text{Cost of 7 items} = 7 \times 84 = \text{Rs. 588}$$

Why other options are wrong:

- Q44.**
- **Option A:** Rs. 294 = 84×3.5 — cost of 3.5 items.
 - **Option B:** Rs. 420 = 84×5 — cost of 5 items.
 - **Option C:** Rs. 504 = 84×6 — cost of 6 items.
 - **Option D:** Correct answer.

Final Answer: Cost of 7 items = Rs. 588 $\Rightarrow$ (D)

Answer: (D) [↑ Go back to Q 44](#)

Solution

Concept — Speed, Distance, Time:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}; \quad \text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

Solution:



$$\text{Speed} = \frac{90 \text{ km}}{1.5 \text{ h}} = 60 \text{ km/h}$$

$$\text{Time for 270 km} = \frac{270}{60} = 4.5 \text{ hours}$$

Why other options are wrong:

- Q45.**
- **Option A:** 3 hours — gives distance $60 \times 3 = 180 \text{ km} \neq 270 \text{ km}$.
 - **Option B:** Correct answer.
 - **Option C:** 6 hours — gives distance $60 \times 6 = 360 \text{ km} \neq 270 \text{ km}$.
 - **Option D:** 9 hours — gives distance $60 \times 9 = 540 \text{ km} \neq 270 \text{ km}$.

Final Answer: Time = 4.5 hours $\Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 45](#)

Solution

Concept — Simple Interest and Amount:

$$\text{SI} = \frac{P \times R \times T}{100}; \quad \text{Amount} = P + \text{SI}$$

Solution:

$$P = \text{Rs. } 3500; R = 6\%; T = 3 \text{ years}$$

$$\text{SI} = \frac{3500 \times 6 \times 3}{100} = \frac{63000}{100} = \text{Rs. } 630$$

$$\text{Amount} = 3500 + 630 = \text{Rs. } 4130$$

Why other options are wrong:

- Q46.**
- **Option A:** Rs. 630 — this is the *interest only*, not the amount.
 - **Option B:** Rs. 3,630 — adds SI of only Rs. 130 (uses wrong calculation).
 - **Option C:** Correct answer.
 - **Option D:** Rs. 4,500 — uses a higher interest rate or different time period.

Final Answer: Amount = Rs. 4,130 $\Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 46](#)

Solution

Concept — Finding Principal from Simple Interest:

$$P = \frac{\text{SI} \times 100}{R \times T}$$

Solution:

$$\text{SI} = \text{Rs. } 2800; R = 10\%; T = 4 \text{ years}$$

$$P = \frac{2800 \times 100}{10 \times 4} = \frac{280000}{40} = \text{Rs. } 7000$$



Verification: $SI = \frac{7000 \times 10 \times 4}{100} = \text{Rs. } 2800 \checkmark$

Why other options are wrong:

- Q47.**
- **Option A:** Correct answer.
 - **Option B:** Rs. 5,600 — $\frac{2800 \times 100}{10 \times 5}$, uses $T = 5$ years instead of 4.
 - **Option C:** Rs. 2,800 — equal to SI itself; incorrect formula application.
 - **Option D:** Rs. 1,400 — $\frac{2800}{2}$; uses wrong divisor.

Final Answer: Principal = Rs. 7,000 $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 47](#)

Solution

Concept — Mode of a Data Set:

The mode is the value that appears most frequently in the data set.

Solution:

Data: 10, 20, 20, 30, 20, 40, 30, 20, 10

Frequency count:

- Q48.**
- 10 appears 2 times
 - 20 appears 4 times
 - 30 appears 2 times
 - 40 appears 1 time

Highest frequency = 4, corresponding to **20**.

Mode = 20

Why other options are wrong:

- **Option A:** 10 — appears only 2 times (less than 20).
- **Option B:** 30 — appears only 2 times (less than 20).
- **Option C:** 40 — appears only 1 time (least frequent).
- **Option D:** Correct answer.

Final Answer: Mode = 20 $\Rightarrow$ (D)

Answer: (D) [↑ Go back to Q 48](#)

Solution

Concept — Median of Even Number of Data Points:

Sort the data in ascending order. For n values (n even), Median = $\frac{n/2\text{-th value} + (n/2 + 1)\text{-th value}}{2}$.



Solution:

Data: 14, 8, 22, 16, 10, 18, 12, 20

Sorted: 8, 10, 12, 14, 16, 18, 20, 22 ($n = 8$)

4th value = 14; 5th value = 16

$$\text{Median} = \frac{14 + 16}{2} = \frac{30}{2} = 15$$

Why other options are wrong:

- Q49.**
- **Option A:** 14 — only the 4th value, not the average of 4th and 5th.
 - **Option B:** 16 — only the 5th value.
 - **Option C:** Correct answer.
 - **Option D:** 17 — $\frac{16+18}{2} = 17$; uses 5th and 6th values instead of 4th and 5th.

Final Answer: Median = 15 $\Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 49](#)

Solution**Concept — Reading a Pictograph:**

Multiply the number of symbols for each subject by the value each symbol represents.

Solution:

Each ★ = 4 students.

- Q50.**
- Subject A: 3 symbols $\Rightarrow 3 \times 4 = 12$ students
 - Subject B: 5 symbols $\Rightarrow 5 \times 4 = 20$ students
 - Subject C: 4 symbols $\Rightarrow 4 \times 4 = 16$ students
 - Subject D: 6 symbols $\Rightarrow 6 \times 4 = 24$ students

Most popular: **Subject D** with 24 students.

Why other options are wrong:

- **Option A:** Subject A — only 12 students (fewest).
- **Option B:** Correct answer — Subject D has 24 students (most).
- **Option C:** Subject B — has 20 students, less than D.
- **Option D:** Subject C — has 16 students, less than D.

Final Answer: Most popular subject = Subject D $\Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 50](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	A	3	D	4	B	5	C
6	A	7	D	8	B	9	A	10	C
11	B	12	D	13	C	14	A	15	D
16	B	17	C	18	A	19	B	20	D
21	C	22	A	23	D	24	C	25	B
26	A	27	D	28	C	29	D	30	C
31	A	32	B	33	C	34	B	35	D
36	A	37	C	38	B	39	D	40	A
41	B	42	C	43	A	44	D	45	B
46	C	47	A	48	D	49	C	50	B

