

AISSEE Mathematics

Sample Paper – 7

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. What is the Hindu-Arabic (decimal) numeral for the Roman number **MCMXCIX**?

- (A) 1989
- (B) 1991
- (C) 1995
- (D) 1999

Q2. Round 85,46,327 to the nearest **lakh**.

- (A) 85,00,000
- (B) 86,00,000
- (C) 84,00,000



(D) 85,46,000

Q3. Using BODMAS, find the value of $5 + 3 \times 2^2 - 8 \div 4$.

(A) 12

(B) 15

(C) 18

(D) 20

Q4. What is the **product** of 25 and 40?

(A) 60

(B) 650

(C) 1,000

(D) 10,000

Q5. Which of the following numbers is **divisible by 9**?

(A) 54,234

(B) 43,215

(C) 67,481

(D) 35,162

Q6. Twin primes are pairs of prime numbers that differ by exactly 2. Which of the following pairs is **NOT** a twin prime pair?

(A) (3, 5)

(B) (11, 13)

(C) (17, 19)

(D) (23, 27)

Q7. On a number line, which integer lies to the **right** of -3 (i.e., is greater than -3)?



- (A) -5
- (B) -2
- (C) -7
- (D) -10

Q8. In a school of 350 students, $\frac{2}{5}$ of them play cricket. How many students play cricket?

- (A) 70
- (B) 105
- (C) 140
- (D) 175

Q9. Find the product: $2\frac{1}{3} \times 1\frac{1}{4}$.

- (A) $2\frac{11}{12}$
- (B) 3
- (C) $3\frac{1}{12}$
- (D) $2\frac{5}{7}$

Q10. Simplify: $3\frac{1}{2} \div 1\frac{3}{4}$.

- (A) $6\frac{1}{8}$
- (B) 1
- (C) $\frac{1}{2}$
- (D) 2

Q11. Asha completed $\frac{3}{7}$ of a journey and had walked 15 km. What is the **total length** of her journey?

- (A) 21 km



- (B) 35 km
- (C) 28 km
- (D) 42 km

Q12. Which of the following fractions is **equal to 1**?

- (A) $\frac{1}{0}$
- (B) $\frac{0}{1}$
- (C) $\frac{5}{5}$
- (D) $\frac{0}{5}$

Q13. Compare the fractions $\frac{5}{9}$ and $\frac{4}{7}$ using cross-multiplication.

- (A) $\frac{5}{9} < \frac{4}{7}$
- (B) $\frac{5}{9} > \frac{4}{7}$
- (C) $\frac{5}{9} = \frac{4}{7}$
- (D) Cannot be determined

Q14. Arrange the fractions $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{6}$, $\frac{7}{12}$ in **ascending order**.

- (A) $\frac{5}{6} < \frac{3}{4} < \frac{2}{3} < \frac{7}{12}$
- (B) $\frac{7}{12} < \frac{2}{3} < \frac{3}{4} < \frac{5}{6}$
- (C) $\frac{2}{3} < \frac{3}{4} < \frac{5}{6} < \frac{7}{12}$
- (D) $\frac{3}{4} < \frac{5}{6} < \frac{7}{12} < \frac{2}{3}$

Q15. Mohan bought 4.5 kg of flour and used 2.75 kg for cooking. How much flour is **remaining**?

- (A) 1.25 kg



- (B) 1.5 kg
- (C) 1.75 kg
- (D) 2.25 kg

Q16. What is the **place value** of the digit 7 in the decimal number 5.374?

- (A) 7
- (B) 0.7
- (C) 70
- (D) 0.07

Q17. A student measured a rod to be 48 cm, but its actual length is 50 cm. What is the **percentage error** in the measurement?

- (A) 4%
- (B) 2%
- (C) 6%
- (D) 8%

Q18. A 200 g mixture contains 30 g of salt and the rest is water. What **percentage** of the mixture is water?

- (A) 15%
- (B) 85%
- (C) 30%
- (D) 70%

Q19. A trader buys goods for Rs. 800 and gains 15% profit. He then sells the goods again at an additional 10% profit on the new price. What is the **final selling price**?

- (A) Rs. 1,000
- (B) Rs. 1,008



(C) Rs. 1,012

(D) Rs. 1,024

Q20. A merchant sells 10 items for the cost price of 12 items. What is his **profit percentage**?

(A) 12%

(B) 15%

(C) 18%

(D) 20%

Q21. Oranges are bought at 5 for Rs. 10 and sold at 4 for Rs. 10. Find the **profit percentage**.

(A) 20%

(B) 25%

(C) 30%

(D) 50%

Q22. A shopkeeper offers a scheme: “Buy 3, Get 1 Free.” What is the effective **discount percentage** on the marked price?

(A) 25%

(B) 33.3%

(C) 20%

(D) 30%

Q23. A machine is bought for Rs. 12,000 and an additional Rs. 1,500 is spent on transportation and repairs. If the machine is sold for Rs. 15,000, what is the **profit**?

(A) Rs. 3,000

(B) Rs. 2,500



(C) Rs. 2,000

(D) Rs. 1,500

Q24. Find the **HCF** of 84 and 126.

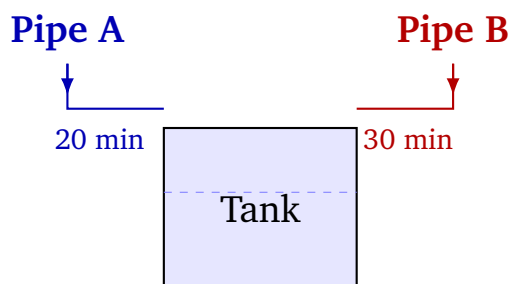
(A) 12

(B) 21

(C) 42

(D) 84

Q25. Pipe A can fill a tank in 20 minutes and Pipe B can fill the same tank in 30 minutes. If both pipes are opened together, in how many minutes will the tank be full?



(A) 12 min

(B) 15 min

(C) 10 min

(D) 25 min

Q26. What is the **smallest 4-digit number** that is divisible by both 8 and 12?

(A) 1,000

(B) 1,008

(C) 1,024

(D) 1,200



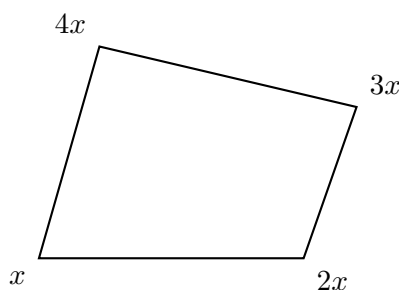
Q27. The HCF of two numbers is 16 and their LCM is 192. If one of the numbers is 64, find the **other number**.

- (A) 32
- (B) 36
- (C) 64
- (D) 48

Q28. Find the **HCF** of 0.6 and 0.9.

- (A) 0.3
- (B) 0.6
- (C) 3
- (D) 0.9

Q29. The four angles of a quadrilateral are in the ratio 1 : 2 : 3 : 4. What is the **largest angle**?



- (A) 36
- (B) 72
- (C) 108
- (D) 144

Q30. A kite has two angles (each formed between an unequal pair of sides) each measuring 110. What is the **sum** of the remaining two angles?

- (A) 100

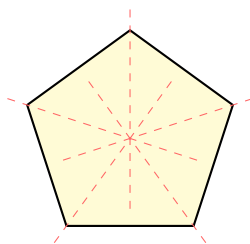


- (B) 140
- (C) 120
- (D) 160

Q31. A shape is rotated $\frac{3}{4}$ of a full turn **clockwise**. What is the angle of rotation?

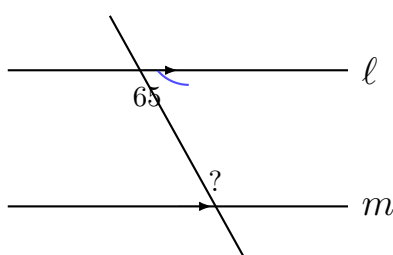
- (A) 90
- (B) 180
- (C) 270
- (D) 360

Q32. How many **lines of symmetry** does a regular pentagon have?



- (A) 5
- (B) 4
- (C) 6
- (D) 10

Q33. In the figure below, two parallel lines ℓ and m are cut by a transversal. One co-interior (same-side interior) angle is 65. Find the **other co-interior angle**.

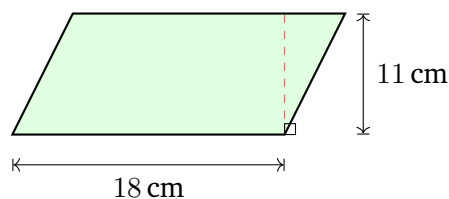


- (A) 65
- (B) 115
- (C) 90
- (D) 180

Q34. What is the sum of all **four interior angles** of any quadrilateral?

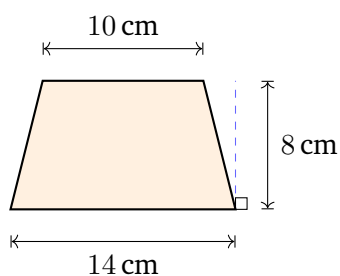
- (A) 180
- (B) 270
- (C) 360
- (D) 540

Q35. Find the **area** of the parallelogram shown below.



- (A) 198 cm^2
- (B) 162 cm^2
- (C) 220 cm^2
- (D) 180 cm^2

Q36. Find the **area** of the trapezium shown below.

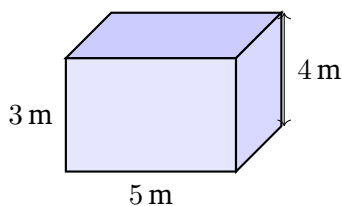


- (A) 48 cm^2



- (B) 72 cm^2
- (C) 88 cm^2
- (D) 96 cm^2

Q37. A rectangular water tank has the dimensions shown. If the tank is completely full, what is the **volume of water** it holds?



- (A) 20 m^3
- (B) 47 m^3
- (C) 60 m^3
- (D) 120 m^3

Q38. Find the **area** of a circular pond of radius 14 m. (Take $\pi = \frac{22}{7}$)

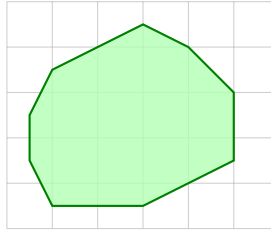
- (A) 88 m^2
- (B) 616 m^2
- (C) 44 m^2
- (D) 308 m^2

Q39. The area of a rectangular piece of land is 504 m^2 and its **width** is 18 m. Find the **length** of the land.

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



- Q40.** The figure below shows an irregular shape drawn on a 1 cm^2 grid. Estimate the area of the shaded region by counting squares (count half-squares as $\frac{1}{2}\text{ cm}^2$).



Each square = 1 cm^2

- (A) 14 cm^2
(B) 20 cm^2
(C) 21 cm^2
(D) 17 cm^2
- Q41.** Are the ratios $3 : 5$ and $12 : 20$ in **proportion**?
- (A) Not in proportion
(B) In proportion
(C) Cannot determine
(D) Sometimes
- Q42.** A and B start a business by investing Rs. 6,000 and Rs. 9,000 respectively. At the end of the year, the total profit is Rs. 7,500. What is **B's share** of the profit?
- (A) Rs. 2,500
(B) Rs. 3,000
(C) Rs. 4,500
(D) Rs. 5,000
- Q43.** 12 workers can complete a project in 10 days. How many days will 8 workers take to complete the same project?



- (A) 15 days
- (B) 12 days
- (C) 20 days
- (D) 16 days

Q44. On a map, the scale is $1 \text{ cm} = 5 \text{ km}$. Two towns are 7 cm apart on the map. What is the **actual distance** between them?

- (A) 7 km
- (B) 12 km
- (C) 25 km
- (D) 35 km

Q45. Rice costs Rs. 45 per kg. If the price increases by $\frac{1}{9}$ of itself, what is the **new price** per kg?

- (A) Rs. 40
- (B) Rs. 46
- (C) Rs. 50
- (D) Rs. 54

Q46. Ravi borrows Rs. 8,000 at 9% per annum simple interest for 3 years. What is the **total amount** he has to pay back?

- (A) Rs. 8,720
- (B) Rs. 10,160
- (C) Rs. 9,440
- (D) Rs. 11,000

Q47. A principal of Rs. 6,000 earns Rs. 1,800 as simple interest in 5 years. Find the **rate of interest** per annum.

- (A) 6%



- (B) 5%
- (C) 8%
- (D) 10%

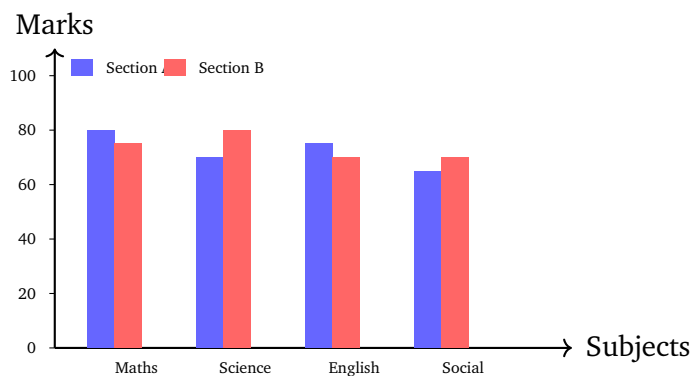
Q48. The table below shows the scores of students in a test.

Score	Frequency
10	3
20	5
30	7
40	4
50	1

Find the **mean score**.

- (A) 25
- (B) 27
- (C) 27.5
- (D) 30

Q49. The double bar graph below shows the marks scored by two sections A and B in four subjects. In which subject does **Section B** score **higher** than Section A?

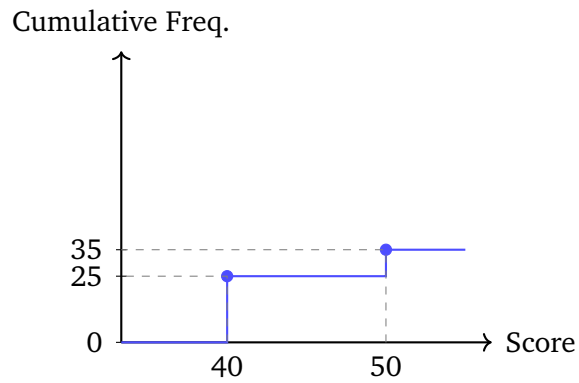


- (A) Mathematics
- (B) Science



- (C) English
- (D) Social Studies

Q50. The step graph below shows the cumulative frequency of students' scores in a test. How many students scored **between 41 and 50**?



- (A) 25
- (B) 35
- (C) 5
- (D) 10



Detailed Solutions

Solution

Concept — Roman Numerals:

Roman numeral values: $M=1000$, $CM=900$, $XC=90$, $IX=9$. Subtractive notation means $CM = 1000 - 100 = 900$, $XC = 100 - 10 = 90$, $IX = 10 - 1 = 9$.

Solution:

$$MCMXCIX = M + CM + XC + IX = 1000 + 900 + 90 + 9 = 1999$$

Why other options are wrong:

- Q1.**
- **Option A:** 1989 would be MCMLXXXIX, not MCMXCIX.
 - **Option B:** 1991 would be MCMXCI.
 - **Option C:** 1995 would be MCMXCV.
 - **Option D:** Correct. $MCMXCIX = 1000 + 900 + 90 + 9 = 1999$.

Final Answer: $MCMXCIX = 1999 \Rightarrow (D)$

Answer: (D) [↑ Go back to Q 1](#)

Solution

Concept — Rounding to the nearest lakh:

To round to the nearest lakh, look at the ten-thousands digit. If it is 5 or more, round up; if less than 5, round down.

Solution:

85,46,327: The digit in the ten-thousands place is 4 (less than 5), so round down.
Rounded value = 85,00,000

Why other options are wrong:

- Q2.**
- **Option A:** Correct. $85,46,327 \approx 85,00,000$ (ten-thousands digit is 4).
 - **Option B:** 86,00,000 would be the answer if the ten-thousands digit were 5 or more.
 - **Option C:** 84,00,000 is incorrect rounding.
 - **Option D:** 85,46,000 rounds only to the nearest thousand, not lakh.

Final Answer: 85,46,327 rounded to nearest lakh = 85,00,000 $\Rightarrow (A)$

Answer: (A) [↑ Go back to Q 2](#)

Solution

Concept — BODMAS:

Order of operations: Brackets, Orders (powers/roots), Division, Multiplication,



Addition, Subtraction. Exponents are evaluated before multiplication.

Solution:

$$\begin{aligned} 5 + 3 \times 2^2 - 8 \div 4 \\ = 5 + 3 \times 4 - 8 \div 4 \quad (\text{evaluate } 2^2 = 4) \\ = 5 + 12 - 2 \quad (\text{multiplication and division}) \\ = 15 \end{aligned}$$

Why other options are wrong:

- Q3.**
- **Option A:** 12 results from ignoring the exponent or computing left-to-right without BODMAS.
 - **Option B:** Correct. Proper BODMAS gives 15.
 - **Option C:** 18 results from incorrect order (e.g., adding first).
 - **Option D:** 20 results from computing $(5 + 3) \times 2^2 - 8 \div 4$.

Final Answer: $5 + 3 \times 2^2 - 8 \div 4 = 15 \Rightarrow$ **(B)**

Answer: (B) [↑ Go back to Q 3](#)

Solution

Concept — Multiplication:

The product of two numbers is obtained by multiplying them together. 25×40 can be computed as $25 \times 4 \times 10$.

Solution:

$$25 \times 40 = 25 \times 4 \times 10 = 100 \times 10 = 1,000$$

Why other options are wrong:

- Q4.**
- **Option A:** 60 is the sum $(25 + 40 - 5)$, not the product.
 - **Option B:** 650 is not the product of 25 and 40.
 - **Option C:** Correct. $25 \times 40 = 1000$.
 - **Option D:** 10,000 would be 25×400 or 250×40 .

Final Answer: $25 \times 40 = 1,000 \Rightarrow$ **(C)**

Answer: (C) [↑ Go back to Q 4](#)

Solution

Concept — Divisibility by 9:

A number is divisible by 9 if the sum of its digits is divisible by 9.

Solution:

- Q5.**
- 54,234: $5 + 4 + 2 + 3 + 4 = 18 = 9 \times 2 \checkmark$



- 43,215: $4 + 3 + 2 + 1 + 5 = 15$ (not divisible by 9)
- 67,481: $6 + 7 + 4 + 8 + 1 = 26$ (not divisible by 9)
- 35,162: $3 + 5 + 1 + 6 + 2 = 17$ (not divisible by 9)

Answer: 54,234

Why other options are wrong:

- **Option A:** Correct. Digit sum = 18, divisible by 9.
- **Option B:** Digit sum = 15, not divisible by 9.
- **Option C:** Digit sum = 26, not divisible by 9.
- **Option D:** Digit sum = 17, not divisible by 9.

Final Answer: 54,234 is divisible by 9 $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 5](#)

Solution

Concept — Twin Primes:

Twin primes are pairs of prime numbers that differ by exactly 2. Both numbers in the pair must be prime.

Solution:

Check each pair:

- Q6.**
- (3, 5): Both prime, differ by 2 — twin primes.
 - (11, 13): Both prime, differ by 2 — twin primes.
 - (17, 19): Both prime, differ by 2 — twin primes.
 - (23, 27): 23 is prime, but $27 = 3^3$ is **not prime** — NOT twin primes.

Why other options are wrong:

- **Option A:** (3, 5) are valid twin primes.
- **Option B:** (11, 13) are valid twin primes.
- **Option C:** (17, 19) are valid twin primes.
- **Option D:** Correct. 27 is not prime, so (23, 27) is NOT a twin prime pair.

Final Answer: (23, 27) is not a twin prime pair $\Rightarrow$ (D)

Answer: (D) [↑ Go back to Q 6](#)

Solution

Concept — Integers on a Number Line:

On a number line, numbers increase from left to right. An integer greater than -3 lies to the right of -3 .



Solution:

We need a number > -3 .

$-5 < -3$, $-2 > -3$, $-7 < -3$, $-10 < -3$.

Only -2 is greater than -3 .

Why other options are wrong:

- Q7.**
- **Option A:** $-5 < -3$, so it is to the LEFT of -3 .
 - **Option B:** Correct. $-2 > -3$, so it lies to the right.
 - **Option C:** $-7 < -3$, so it is to the LEFT.
 - **Option D:** $-10 < -3$, so it is to the LEFT.

Final Answer: -2 is to the right of $-3 \Rightarrow$ **(B)**

Answer: (B) [↑ Go back to Q 7](#)

Solution**Concept — Fraction of a Quantity:**

To find a fraction of a quantity, multiply the fraction by the total.

Solution:

$$\text{Number of students who play cricket} = \frac{2}{5} \times 350 = \frac{700}{5} = 140$$

Why other options are wrong:

- Q8.**
- **Option A:** $70 = \frac{1}{5} \times 350$, uses wrong fraction.
 - **Option B:** $105 = \frac{3}{10} \times 350$, incorrect.
 - **Option C:** Correct. $\frac{2}{5} \times 350 = 140$.
 - **Option D:** $175 = \frac{1}{2} \times 350$, uses wrong fraction.

Final Answer: $\frac{2}{5} \times 350 = 140$ students $\Rightarrow$ **(C)**

Answer: (C) [↑ Go back to Q 8](#)

Solution**Concept — Multiplication of Mixed Fractions:**

Convert mixed fractions to improper fractions, then multiply numerators and denominators.

Solution:

$$2\frac{1}{3} \times 1\frac{1}{4} = \frac{7}{3} \times \frac{5}{4} = \frac{35}{12}$$

Convert to mixed number: $35 \div 12 = 2$ remainder 11 , so $= 2\frac{11}{12}$

Why other options are wrong:

- Q9.**
- **Option A:** Correct. $\frac{7}{3} \times \frac{5}{4} = \frac{35}{12} = 2\frac{11}{12}$.
 - **Option B:** 3 would require $\frac{7}{3} \times \frac{9}{7} = 3$, wrong second factor.
 - **Option C:** $3\frac{1}{12} = \frac{37}{12}$, not the product.
 - **Option D:** $2\frac{5}{7}$ is not $\frac{35}{12}$.

Final Answer: $2\frac{1}{3} \times 1\frac{1}{4} = 2\frac{11}{12} \Rightarrow$ **(A)**

Answer: (A) [↑ Go back to Q 9](#)

Solution

Concept — Division of Mixed Fractions:

To divide fractions, multiply by the reciprocal of the divisor.

Solution:

$$3\frac{1}{2} \div 1\frac{3}{4} = \frac{7}{2} \div \frac{7}{4} = \frac{7}{2} \times \frac{4}{7} = \frac{28}{14} = 2$$

Why other options are wrong:

- Q10.**
- **Option A:** $6\frac{1}{8}$ would result from multiplying (not dividing) incorrectly.
 - **Option B:** 1 would be the result only if both fractions were equal.
 - **Option C:** $\frac{1}{2}$ is the reciprocal of 2, not the quotient.
 - **Option D:** Correct. $\frac{7}{2} \div \frac{7}{4} = \frac{7}{2} \times \frac{4}{7} = 2$.

Final Answer: $3\frac{1}{2} \div 1\frac{3}{4} = 2 \Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 10](#)

Solution

Concept — Unitary Method with Fractions:

If a fraction of the total is known, divide the known part by that fraction to find the total.

Solution:

$$\frac{3}{7} \text{ of total journey} = 15 \text{ km}$$

$$\text{Total journey} = 15 \div \frac{3}{7} = 15 \times \frac{7}{3} = \frac{105}{3} = 35 \text{ km}$$

Why other options are wrong:

- Q11.**
- **Option A:** $21 \text{ km} = 15 \times \frac{7}{5}$, uses wrong denominator.
 - **Option B:** Correct. $15 \times \frac{7}{3} = 35 \text{ km}$.
 - **Option C:** $28 \text{ km} = 15 \times \frac{7}{3.75}$, incorrect.
 - **Option D:** $42 \text{ km} = 15 \times \frac{14}{5}$, wrong multiplier.



Final Answer: Total journey = 35 km $\Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 11](#)

Solution

Concept — Fractions Equal to 1:

A fraction equals 1 when its numerator equals its non-zero denominator. Division by zero is undefined.

Solution:

- Q12.**
- $\frac{1}{0}$: undefined (denominator is zero).
 - $\frac{0}{1} = 0$: not 1.
 - $\frac{5}{5} = 1$: ✓ correct.
 - $\frac{0}{5} = 0$: not 1.

Why other options are wrong:

- **Option A:** $\frac{1}{0}$ is undefined; division by zero has no value.
- **Option B:** $\frac{0}{1} = 0$, not 1.
- **Option C:** Correct. $\frac{5}{5} = 1$.
- **Option D:** $\frac{0}{5} = 0$, not 1.

Final Answer: $\frac{5}{5} = 1 \Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 12](#)

Solution

Concept — Comparing Fractions by Cross-Multiplication:

For fractions $\frac{a}{b}$ and $\frac{c}{d}$, compare $a \times d$ with $b \times c$. The fraction with the larger cross-product is greater.

Solution:

Compare $\frac{5}{9}$ and $\frac{4}{7}$:

Cross-multiply: $5 \times 7 = 35$ and $4 \times 9 = 36$.

Since $35 < 36$, we have $\frac{5}{9} < \frac{4}{7}$.

Why other options are wrong:

- Q13.**
- **Option A:** Correct. $5 \times 7 = 35 < 36 = 4 \times 9$, so $\frac{5}{9} < \frac{4}{7}$.
 - **Option B:** Incorrect; $35 < 36$ means $\frac{5}{9}$ is smaller, not larger.
 - **Option C:** They are not equal ($35 \neq 36$).
 - **Option D:** The comparison can be determined; option A is the result.



Final Answer: $\frac{5}{9} < \frac{4}{7} \Rightarrow \text{(A)}$

Answer: (A) [↑ Go back to Q 13](#)

Solution

Concept — Ascending Order of Fractions via LCM:

Convert fractions to equivalent fractions with a common denominator (LCM of all denominators), then compare numerators.

Solution:

LCM of 3, 4, 6, 12 = 12.

Q14.

- $\frac{2}{3} = \frac{8}{12}$
- $\frac{3}{4} = \frac{9}{12}$
- $\frac{5}{6} = \frac{10}{12}$
- $\frac{7}{12} = \frac{7}{12}$

Ascending order of numerators: $7 < 8 < 9 < 10$, i.e., $\frac{7}{12} < \frac{2}{3} < \frac{3}{4} < \frac{5}{6}$.

Why other options are wrong:

- **Option A:** Reverse (descending) order, not ascending.
- **Option B:** Correct. $\frac{7}{12} < \frac{2}{3} < \frac{3}{4} < \frac{5}{6}$.
- **Option C:** $\frac{7}{12}$ is smallest, not $\frac{2}{3}$.
- **Option D:** Completely scrambled order.

Final Answer: $\frac{7}{12} < \frac{2}{3} < \frac{3}{4} < \frac{5}{6} \Rightarrow \text{(B)}$

Answer: (B) [↑ Go back to Q 14](#)

Solution

Concept — Decimal Subtraction:

Align decimal points and subtract digit by digit, borrowing when necessary.

Solution:

$$4.50 - 2.75:$$

$$4.50 - 2.75 = 1.75 \text{ kg}$$

$$\text{Verification: } 1.75 + 2.75 = 4.50 \checkmark$$

Why other options are wrong:

- Q15.**
- **Option A:** 1.25 kg would be $4.00 - 2.75$, forgetting the extra 0.5.
 - **Option B:** 1.5 kg is incorrect subtraction.
 - **Option C:** Correct. $4.5 - 2.75 = 1.75 \text{ kg}$.



- **Option D:** 2.25 kg would be $5.0 - 2.75$, wrong starting value.

Final Answer: Flour remaining = 1.75 kg $\Rightarrow$ **(C)**

Answer: (C) [↑ Go back to Q 15](#)

Solution

Concept — Place Value in Decimals:

In a decimal number: tenths ($\frac{1}{10}$), hundredths ($\frac{1}{100}$), thousandths ($\frac{1}{1000}$), ...

Solution:

In 5.374: digits after the decimal point are 3 (tenths), 7 (hundredths), 4 (thousandths).

The digit 7 is in the **hundredths** place.

$$\text{Place value of 7} = 7 \times \frac{1}{100} = \frac{7}{100} = 0.07$$

Why other options are wrong:

- Q16.**
- **Option A:** 7 is the face value, not the place value.
 - **Option B:** 0.7 is the place value of 7 in the tenths position, but 7 is in hundredths here.
 - **Option C:** 70 would be place value if 7 were in tens place.
 - **Option D:** Correct. 7 is in hundredths place, so place value = 0.07.

Final Answer: Place value of 7 in 5.374 is 0.07 $\Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 16](#)

Solution

Concept — Percentage Error:

$$\text{Percentage error} = \frac{|\text{Error}|}{\text{Actual value}} \times 100\%$$

Solution:

$$\text{Error} = 50 - 48 = 2 \text{ cm}$$

$$\text{Percentage error} = \frac{2}{50} \times 100 = 4\%$$

Why other options are wrong:

- Q17.**
- **Option A:** Correct. $\frac{2}{50} \times 100 = 4\%$.
 - **Option B:** 2% would result from $\frac{2}{100} \times 100$, wrong denominator.
 - **Option C:** 6% is obtained by $\frac{3}{50} \times 100$, wrong error value.
 - **Option D:** 8% is obtained by $\frac{4}{50} \times 100$, wrong error value.

Final Answer: Percentage error = 4% $\Rightarrow$ **(A)**



Answer: (A) [↑ Go back to Q 17](#)

Solution

Concept — Percentage of a Component in a Mixture:

$$\text{Percentage of water} = \frac{\text{Mass of water}}{\text{Total mass}} \times 100\%$$

Solution:

$$\text{Mass of water} = 200 - 30 = 170 \text{ g}$$

$$\text{Percentage water} = \frac{170}{200} \times 100 = 85\%$$

Why other options are wrong:

- Q18.**
- **Option A:** 15% is the percentage of salt ($\frac{30}{200} \times 100$), not water.
 - **Option B:** Correct. $\frac{170}{200} \times 100 = 85\%$.
 - **Option C:** 30% is not derived correctly from the data.
 - **Option D:** 70% would require 140 g of water, but there are 170 g.

Final Answer: Percentage of water = 85% $\Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 18](#)

Solution

Concept — Successive Profit:

$$\text{First selling price} = \text{CP} \times (1 + \text{profit}_1). \text{ Second selling price} = \text{SP}_1 \times (1 + \text{profit}_2).$$

Solution:

$$\text{CP} = \text{Rs. } 800, \text{ first profit} = 15\%:$$

$$\text{SP}_1 = 800 \times 1.15 = 920$$

$$\text{Second profit} = 10\%:$$

$$\text{SP}_2 = 920 \times 1.10 = 920 + 92 = \text{Rs. } 1,012$$

Why other options are wrong:

- Q19.**
- **Option A:** Rs. 1000 ignores the second 10% profit.
 - **Option B:** Rs. 1008 applies incorrect percentages.
 - **Option C:** Correct. $800 \times 1.15 \times 1.10 = 1012$.
 - **Option D:** Rs. 1024 results from adding both percentages directly (25%) to CP, which is wrong for successive profits.

Final Answer: Final selling price = Rs. 1,012 $\Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 19](#)



Solution**Concept — Profit Percentage from Selling at Higher Rate:**

If merchant sells 10 items for the cost of 12 items, he collects the price of 12 but spent on only 10.

Solution:

Let cost per item = x .

CP of 10 items = $10x$. SP (cost of 12 items) = $12x$.

Profit = $12x - 10x = 2x$

Profit% = $\frac{2x}{10x} \times 100 = 20\%$

Why other options are wrong:

- Q20.**
- **Option A:** 12% is the extra items as a percentage of 10 but computed as fraction of 10 incorrectly.
 - **Option B:** 15% has no basis from this problem.
 - **Option C:** 18% is incorrect.
 - **Option D:** Correct. $\frac{2}{10} \times 100 = 20\%$.

Final Answer: Profit percentage = $20\% \Rightarrow$ (D)

Answer: (D) [↑ Go back to Q 20](#)

Solution**Concept — Profit Percentage on Individual Items:**

Find CP and SP per unit, then calculate profit% = $\frac{SP - CP}{CP} \times 100$.

Solution:

CP: 5 oranges for Rs. 10 $\Rightarrow$ CP per orange = $\frac{10}{5} =$ Rs. 2

SP: 4 oranges for Rs. 10 $\Rightarrow$ SP per orange = $\frac{10}{4} =$ Rs. 2.50

Profit = Rs. 2.50 – Rs. 2 = Rs. 0.50

Profit% = $\frac{0.50}{2} \times 100 = 25\%$

Why other options are wrong:

- Q21.**
- **Option A:** 20% would mean SP = Rs. 2.40, but SP = Rs. 2.50.
 - **Option B:** Correct. Profit = Rs. 0.50 on CP of Rs. 2, giving 25%.
 - **Option C:** 30% would mean profit = Rs. 0.60, but profit is only Rs. 0.50.
 - **Option D:** 50% would mean profit = Re 1, but profit is only Rs. 0.50.

Final Answer: Profit percentage = $25\% \Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 21](#)



Solution**Concept — Effective Discount in Buy-Get-Free Offers:**

In a “Buy n , Get 1 Free” offer, you pay for n items but get $n + 1$. The free item’s price is the discount.

Solution:

“Buy 3, Get 1 Free”: You pay for 3 items, receive 4 items.

$$\text{Effective discount} = \frac{1}{4} \times 100 = \mathbf{25\%}$$

(The free item is $\frac{1}{4}$ of the 4 items received.)

Why other options are wrong:

- Q22.**
- **Option A:** Correct. Free item is 1 out of 4, so discount = 25%.
 - **Option B:** 33.3% would be $\frac{1}{3}$, which applies when 1 item is free out of 3 paid.
 - **Option C:** 20% would be $\frac{1}{5}$, incorrect count.
 - **Option D:** 30% has no basis from this offer.

Final Answer: Effective discount = 25% $\Rightarrow$ **(A)**

Answer: (A) [↑ Go back to Q 22](#)

Solution**Concept — Profit After Considering All Costs:**

Total cost = purchase price + all additional expenses. Profit = SP – Total cost.

Solution:

$$\text{Total cost} = \text{Rs. } 12,000 + \text{Rs. } 1,500 = \text{Rs. } 13,500$$

$$\text{SP} = \text{Rs. } 15,000$$

$$\text{Profit} = 15,000 - 13,500 = \mathbf{\text{Rs. } 1,500}$$

Why other options are wrong:

- Q23.**
- **Option A:** Rs. 3,000 ignores the Rs. 1,500 expense (15000 – 12000).
 - **Option B:** Rs. 2,500 uses incorrect total cost.
 - **Option C:** Rs. 2,000 uses incorrect total cost.
 - **Option D:** Correct. Profit = 15000 – 13500 = Rs. 1500.

Final Answer: Profit = Rs. 1,500 $\Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 23](#)



Solution**Concept — Highest Common Factor (HCF):**

HCF is the product of the lowest powers of common prime factors.

Solution:

$$84 = 2^2 \times 3 \times 7$$

$$126 = 2 \times 3^2 \times 7$$

Common prime factors with lowest powers: $2^1 \times 3^1 \times 7^1$

$$\text{HCF} = 2 \times 3 \times 7 = 42$$

Why other options are wrong:

- Q24.**
- **Option A:** 12 is a factor of 84 but not of 126.
 - **Option B:** 21 divides both but is not the highest: $42 = 2 \times 21$ also divides both.
 - **Option C:** Correct. $\text{HCF}(84, 126) = 42$.
 - **Option D:** 84 does not divide 126 ($126 \div 84$ is not an integer).

Final Answer: $\text{HCF}(84, 126) = 42 \Rightarrow \text{(C)}$

Answer: (C) [↑ Go back to Q 24](#)

Solution**Concept — Pipes and Cisterns (LCM method):**

Work done per minute by a pipe = $\frac{1}{\text{time to fill}}$. Combined rate = sum of individual rates.

Solution:

$$\text{Rate of Pipe A} = \frac{1}{20} \text{ tank/min}$$

$$\text{Rate of Pipe B} = \frac{1}{30} \text{ tank/min}$$

$$\text{Combined rate} = \frac{1}{20} + \frac{1}{30} = \frac{3}{60} + \frac{2}{60} = \frac{5}{60} = \frac{1}{12} \text{ tank/min}$$

Time to fill = 12 minutes.

Why other options are wrong:

- Q25.**
- **Option A:** Correct. Combined they fill $\frac{1}{12}$ tank per minute, taking 12 min.
 - **Option B:** 15 min is incorrect; the combined rate is faster.
 - **Option C:** 10 min would require a combined rate of $\frac{1}{10}$, but actual is $\frac{1}{12}$.
 - **Option D:** 25 min is slower than either pipe alone, impossible.

Final Answer: Both pipes fill the tank in 12 minutes $\Rightarrow \text{(A)}$

Answer: (A) [↑ Go back to Q 25](#)



Solution**Concept — LCM and Smallest Multiples:**

To find the smallest number divisible by both 8 and 12, find their LCM, then find the smallest multiple of that LCM with at least 4 digits.

Solution:

$$\text{LCM}(8, 12): 8 = 2^3, 12 = 2^2 \times 3. \text{ LCM} = 2^3 \times 3 = 24.$$

Smallest 4-digit multiple of 24: $1000 \div 24 = 41.67$, so next integer is 42.

$$42 \times 24 = 1,008$$

$$\text{Verification: } 1008 \div 8 = 126 \checkmark, 1008 \div 12 = 84 \checkmark$$

Why other options are wrong:

- Q26.**
- **Option A:** 1000 is not divisible by 24 ($1000 \div 24 = 41.67$).
 - **Option B:** Correct. $1008 = 42 \times 24$, divisible by both 8 and 12.
 - **Option C:** 1024 is divisible by 8 but not by 12.
 - **Option D:** 1200 is divisible by both, but 1008 is smaller.

Final Answer: Smallest 4-digit number divisible by 8 and 12 is 1,008 $\Rightarrow$ **(B)**

Answer: (B) [↑ Go back to Q 26](#)

Solution**Concept — Relationship Between HCF, LCM and Two Numbers:**

For two numbers a and b : $a \times b = \text{HCF}(a, b) \times \text{LCM}(a, b)$.

Solution:

$$a \times b = \text{HCF} \times \text{LCM} = 16 \times 192 = 3072$$

One number = 64.

$$\text{Other number} = \frac{3072}{64} = 48$$

Verification: $\text{HCF}(64, 48): 64 = 2^6, 48 = 2^4 \times 3. \text{ HCF} = 2^4 = 16 \checkmark. \text{ LCM} = 2^6 \times 3 = 192 \checkmark$

Why other options are wrong:

- Q27.**
- **Option A:** 32: $\text{HCF}(64, 32) = 32 \neq 16$.
 - **Option B:** 36: $64 \times 36 = 2304 \neq 3072$.
 - **Option C:** 64: $\text{HCF}(64, 64) = 64 \neq 16$.
 - **Option D:** Correct. $64 \times 48 = 3072 = 16 \times 192$.

Final Answer: The other number is 48 $\Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 27](#)



Solution**Concept — HCF of Decimals:**

To find HCF of decimal numbers, multiply all by a power of 10 to make them whole numbers, find HCF, then divide by the same power of 10.

Solution:

Multiply by 10: HCF(6, 9).

$$6 = 2 \times 3, 9 = 3^2. \text{ HCF} = 3.$$

$$\text{HCF of } 0.6 \text{ and } 0.9 = \frac{3}{10} = 0.3$$

$$\text{Verification: } 0.6 \div 0.3 = 2 \checkmark, 0.9 \div 0.3 = 3 \checkmark$$

Why other options are wrong:

- Q28.**
- **Option A:** Correct. $\text{HCF}(0.6, 0.9) = 0.3$.
 - **Option B:** 0.6 does not divide 0.9 exactly ($0.9 \div 0.6 = 1.5$).
 - **Option C:** 3 is larger than both numbers, cannot be their HCF.
 - **Option D:** 0.9 does not divide 0.6 exactly.

Final Answer: HCF of 0.6 and 0.9 is 0.3 $\Rightarrow$ **(A)**

Answer: (A) [↑ Go back to Q 28](#)

Solution**Concept — Angles of a Quadrilateral in Ratio:**

The sum of all four interior angles of a quadrilateral = 360. Use ratio to find each angle.

Solution:

Let angles be $x, 2x, 3x, 4x$.

$$x + 2x + 3x + 4x = 360$$

$$10x = 360$$

$$x = 36$$

$$\text{Largest angle} = 4x = 4 \times 36 = 144$$

Why other options are wrong:

- Q29.**
- **Option A:** 36 is the smallest angle ($1x$), not the largest.
 - **Option B:** 72 is the second angle ($2x$).
 - **Option C:** 108 is the third angle ($3x$).
 - **Option D:** Correct. Largest angle = $4 \times 36 = 144$.

Final Answer: Largest angle = 144 $\Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 29](#)



Solution**Concept — Angles of a Kite:**

In a kite, the two angles between unequal sides (the “wing” angles) are equal. The sum of all four angles of any quadrilateral is 360.

Solution:

Two equal angles = 110 each.

Sum of remaining two angles = $360 - 2 \times 110 = 360 - 220 = 140$

Why other options are wrong:

- Q30.**
- **Option A:** 100° implies the two given angles sum to 260° , but $2 \times 110 = 220$.
 - **Option B:** Correct. $360 - 220 = 140$.
 - **Option C:** 120° implies $360 - 120 = 240$ for the two equal angles, but $240/2 = 120 \neq 110$.
 - **Option D:** 160° implies only 200° for the two equal angles, but $200/2 = 100 \neq 110$.

Final Answer: Sum of remaining two angles = 140 $\Rightarrow$ **(B)**

Answer: (B) [↑ Go back to Q 30](#)

Solution**Concept — Rotation and Angles:**

A full turn = 360. A fraction of a full turn corresponds to that fraction of 360.

Solution:

$$\text{Angle of rotation} = \frac{3}{4} \times 360 = \frac{3 \times 360}{4} = \frac{1080}{4} = 270$$

Why other options are wrong:

- Q31.**
- **Option A:** 90 is a $\frac{1}{4}$ turn, not $\frac{3}{4}$.
 - **Option B:** 180 is a $\frac{1}{2}$ turn, not $\frac{3}{4}$.
 - **Option C:** Correct. $\frac{3}{4} \times 360 = 270$.
 - **Option D:** 360 is a full turn.

Final Answer: $\frac{3}{4}$ of full turn = 270 $\Rightarrow$ **(C)**

Answer: (C) [↑ Go back to Q 31](#)

Solution**Concept — Lines of Symmetry of Regular Polygons:**

A regular polygon with n sides has exactly n lines of symmetry. Each line passes through a vertex and the midpoint of the opposite side.



Solution:

A regular pentagon has $n = 5$ sides.

Lines of symmetry = 5

Each line passes through one vertex and the midpoint of the opposite side.

Why other options are wrong:

- Q32.**
- **Option A:** Correct. A regular pentagon has exactly 5 lines of symmetry.
 - **Option B:** 4 lines of symmetry belong to a square (4 sides).
 - **Option C:** 6 lines of symmetry belong to a regular hexagon.
 - **Option D:** 10 is the number of diagonals of a regular pentagon, not lines of symmetry.

Final Answer: Regular pentagon has 5 lines of symmetry $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 32](#)

Solution**Concept — Co-interior Angles (Same-side Interior Angles):**

When two parallel lines are cut by a transversal, co-interior angles (also called consecutive interior angles or same-side interior angles) are supplementary, i.e., they add up to 180.

Solution:

Given co-interior angle = 65

Other co-interior angle = $180 - 65 = 115$

Why other options are wrong:

- Q33.**
- **Option A:** 65 would apply if the angles were alternate interior angles (equal), not co-interior.
 - **Option B:** Correct. $180 - 65 = 115$.
 - **Option C:** 90 would only apply if both co-interior angles were equal and supplementary, i.e., both right angles.
 - **Option D:** 180 is the sum of the two co-interior angles, not the value of either.

Final Answer: Other co-interior angle = 115 $\Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 33](#)



Solution**Concept — Angle Sum Property of a Quadrilateral:**

Any quadrilateral can be divided into two triangles by a diagonal. Each triangle has an angle sum of 180, so a quadrilateral's angles sum to $2 \times 180 = 360$.

Solution:

Sum of interior angles of any quadrilateral = 360

This applies to squares, rectangles, parallelograms, trapeziums, and irregular quadrilaterals alike.

Why other options are wrong:

- Q34.**
- **Option A:** 180 is the angle sum of a triangle.
 - **Option B:** 270 is not the angle sum of any standard polygon.
 - **Option C:** Correct. All quadrilaterals have angle sum = 360.
 - **Option D:** 540 is the angle sum of a pentagon.

Final Answer: Sum of angles in a quadrilateral = 360 $\Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 34](#)

Solution**Concept — Area of a Parallelogram:**

Area of parallelogram = base $\times$ height, where height is the perpendicular distance between the parallel sides.

Solution:

Base = 18 cm, Height = 11 cm

Area = $18 \times 11 = 198 \text{ cm}^2$

Why other options are wrong:

- Q35.**
- **Option A:** Correct. $18 \times 11 = 198 \text{ cm}^2$.
 - **Option B:** $162 \text{ cm}^2 = 18 \times 9$, uses wrong height.
 - **Option C:** $220 \text{ cm}^2 = 20 \times 11$, uses wrong base.
 - **Option D:** 180 cm^2 uses incorrect multiplication.

Final Answer: Area of parallelogram = $198 \text{ cm}^2 \Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 35](#)

Solution**Concept — Area of a Trapezium:**

Area = $\frac{1}{2} \times (\text{sum of parallel sides}) \times \text{height}$



Solution:

Parallel sides: $a = 10$ cm, $b = 14$ cm. Height = 8 cm.

$$\text{Area} = \frac{1}{2} \times (10 + 14) \times 8 = \frac{1}{2} \times 24 \times 8 = 12 \times 8 = 96 \text{ cm}^2$$

Why other options are wrong:

- Q36.**
- **Option A:** $48 \text{ cm}^2 = \frac{1}{2} \times 12 \times 8$, forgets to add both parallel sides.
 - **Option B:** 72 cm^2 uses incorrect values.
 - **Option C:** 88 cm^2 uses incorrect calculation.
 - **Option D:** Correct. $\frac{1}{2}(10 + 14) \times 8 = 96 \text{ cm}^2$.

Final Answer: Area of trapezium = $96 \text{ cm}^2 \Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 36](#)

Solution

Concept — Volume of a Cuboid:

Volume = length $\times$ breadth $\times$ height

Solution:

Length = 5 m, Breadth = 4 m, Height = 3 m

$$\text{Volume} = 5 \times 4 \times 3 = 60 \text{ m}^3$$

Why other options are wrong:

- Q37.**
- **Option A:** $20 \text{ m}^3 = 5 \times 4 \times 1$, uses wrong height.
 - **Option B:** 47 m^3 is $5 + 4 + 3$ repeatedly added, not multiplied.
 - **Option C:** Correct. $5 \times 4 \times 3 = 60 \text{ m}^3$.
 - **Option D:** $120 \text{ m}^3 = 5 \times 4 \times 6$, doubles the height.

Final Answer: Volume of tank = $60 \text{ m}^3 \Rightarrow$ **(C)**

Answer: (C) [↑ Go back to Q 37](#)

Solution

Concept — Area of a Circle:

Area = πr^2 , where r is the radius.

Solution:

$$r = 14 \text{ m}, \pi = \frac{22}{7}$$

$$\text{Area} = \frac{22}{7} \times 14^2 = \frac{22}{7} \times 196 = 22 \times 28 = 616 \text{ m}^2$$

Why other options are wrong:



- Q38.**
- **Option A:** $88 \text{ m}^2 = 2\pi r = \text{circumference (not area)}$.
 - **Option B:** Correct. $\frac{22}{7} \times 196 = 616 \text{ m}^2$.
 - **Option C:** $44 \text{ m}^2 = \pi r = \text{half circumference, not area}$.
 - **Option D:** $308 \text{ m}^2 = \frac{1}{2}\pi r^2$, uses half the formula.

Final Answer: Area of circular pond = $616 \text{ m}^2 \Rightarrow \text{(B)}$

Answer: (B) [↑ Go back to Q 38](#)

Solution

Concept — Finding Dimensions from Area of a Rectangle:

Area of rectangle = length $\times$ width. So, $\text{Length} = \frac{\text{Area}}{\text{Width}}$.

Solution:

Area = 504 m^2 , Width = 18 m

$$\text{Length} = \frac{504}{18} = 28 \text{ m}$$

Verification: $28 \times 18 = 504 \checkmark$

Why other options are wrong:

- Q39.**
- **Option A:** Correct. $504 \div 18 = 28 \text{ m}$.
 - **Option B:** 36 m : $36 \times 18 = 648 \neq 504$.
 - **Option C:** 24 m : $24 \times 18 = 432 \neq 504$.
 - **Option D:** 32 m : $32 \times 18 = 576 \neq 504$.

Final Answer: Length = $28 \text{ m} \Rightarrow \text{(A)}$

Answer: (A) [↑ Go back to Q 39](#)

Solution

Concept — Area by Counting Unit Squares:

Count whole squares fully inside the shape, and count half-squares (or partial squares with area $\geq \frac{1}{2}$) as half a unit each.

Solution:

From the grid figure:

- Q40.**
- Whole squares = 14
 - Half squares = 6 (contributes $6 \times \frac{1}{2} = 3$)

Approximate area = $14 + 3 = 17 \text{ cm}^2$

Why other options are wrong:

- **Option A:** 14 cm^2 counts only full squares, ignoring the half squares.



- **Option B:** 20 cm^2 overcounts the partial squares.
- **Option C:** 21 cm^2 overcounts further.
- **Option D:** Correct. $14 + 3 = 17 \text{ cm}^2$.

Final Answer: Approximate area $\approx 17 \text{ cm}^2 \Rightarrow$ **(D)**

Answer: (D) [↑ Go back to Q 40](#)

Solution

Concept — Proportion (Cross-Multiplication Test):

Two ratios $a : b$ and $c : d$ are in proportion if $a \times d = b \times c$.

Solution:

$3 : 5$ and $12 : 20$:

Cross-multiply: $3 \times 20 = 60$ and $5 \times 12 = 60$.

Since $60 = 60$, the ratios are **in proportion**.

Also: $\frac{12}{20} = \frac{3}{5}$ (dividing by 4). ✓

Why other options are wrong:

- Q41.**
- **Option A:** Wrong; the cross products are equal, so they ARE in proportion.
 - **Option B:** Correct. $3 \times 20 = 5 \times 12 = 60$.
 - **Option C:** The answer can be determined; it is B.
 - **Option D:** Proportion is definitive, not conditional.

Final Answer: $3 : 5$ and $12 : 20$ are in proportion $\Rightarrow$ **(B)**

Answer: (B) [↑ Go back to Q 41](#)

Solution

Concept — Profit Sharing in Ratio:

Partners share profit in the ratio of their investments (assuming equal time period).

Solution:

Investment ratio = Rs. 6,000 : Rs. 9,000 = $2 : 3$

Total profit = Rs. 7,500

B's share = $\frac{3}{5} \times 7,500 = \text{Rs. } 4,500$

A's share = $\frac{2}{5} \times 7,500 = \text{Rs. } 3,000$. Check: $3000 + 4500 = 7500$ ✓

Why other options are wrong:



- Q42.**
- **Option A:** Rs. 2,500 = $\frac{1}{3} \times 7500$, uses wrong ratio part.
 - **Option B:** Rs. 3,000 is A's share, not B's.
 - **Option C:** Correct. B's share = $\frac{3}{5} \times 7500 = \text{Rs. } 4500$.
 - **Option D:** Rs. 5,000 exceeds B's proper proportion.

Final Answer: B's share = Rs. 4,500 $\Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 42](#)

Solution

Concept — Inverse Proportion (Work and Time):

Fewer workers $\Rightarrow$ more time. Workers $\times$ Days = constant.

Solution:

$$12 \times 10 = 8 \times d$$

$$d = \frac{12 \times 10}{8} = \frac{120}{8} = 15 \text{ days}$$

Why other options are wrong:

- Q43.**
- **Option A:** Correct. $\frac{120}{8} = 15$ days.
 - **Option B:** 12 days would be if nothing changed (same number of workers).
 - **Option C:** 20 days would result from $\frac{120}{6}$, wrong worker count.
 - **Option D:** 16 days would result from $\frac{12 \times 8}{6}$, incorrect formula.

Final Answer: 8 workers take 15 days $\Rightarrow$ (A)

Answer: (A) [↑ Go back to Q 43](#)

Solution

Concept — Map Scale and Actual Distance:

Actual distance = map distance $\times$ scale factor

Solution:

Scale: 1 cm = 5 km. Map distance = 7 cm.

Actual distance = $7 \times 5 = 35$ km

Why other options are wrong:

- Q44.**
- **Option A:** 7 km forgets to apply the scale factor.
 - **Option B:** 12 km = $7 + 5$, adds instead of multiplies.
 - **Option C:** 25 km = 5×5 , uses wrong map distance.
 - **Option D:** Correct. $7 \times 5 = 35$ km.

Final Answer: Actual distance = 35 km $\Rightarrow$ (D)



Answer: (D) [↑ Go back to Q 44](#)

Solution

Concept — Price Increase by a Fraction:

$$\text{New price} = \text{old price} + \frac{1}{9} \times \text{old price} = \text{old price} \times \left(1 + \frac{1}{9}\right) = \text{old price} \times \frac{10}{9}.$$

Solution:

Old price = Rs. 45

$$\text{Increase} = \frac{1}{9} \times 45 = \text{Rs. } 5$$

New price = $45 + 5 = \text{Rs. } 50$

Why other options are wrong:

- Q45.**
- **Option A:** Rs. 40 is a decrease, not an increase.
 - **Option B:** Rs. 46 is only Rs. 1 increase, not $\frac{1}{9}$ of Rs. 45.
 - **Option C:** Correct. $45 + 5 = \text{Rs. } 50$.
 - **Option D:** Rs. 54 = $45 + 9$, applies wrong fraction ($\frac{1}{5}$).

Final Answer: New price = Rs. 50 $\Rightarrow$ (C)

Answer: (C) [↑ Go back to Q 45](#)

Solution

Concept — Simple Interest and Total Amount:

$$\text{SI} = \frac{P \times R \times T}{100}. \text{ Total Amount} = P + \text{SI}.$$

Solution:

$P = \text{Rs. } 8,000, R = 9\%, T = 3 \text{ years}$

$$\text{SI} = \frac{8000 \times 9 \times 3}{100} = \frac{2,16,000}{100} = \text{Rs. } 2,160$$

Total amount = $8,000 + 2,160 = \text{Rs. } 10,160$

Why other options are wrong:

- Q46.**
- **Option A:** Rs. 8,720 = $8000 + 8000 \times 9 \times 1/100$, uses only 1 year.
 - **Option B:** Correct. Total = $8000 + 2160 = \text{Rs. } 10,160$.
 - **Option C:** Rs. 9,440 = $8000 + 1440$, uses $R = 6\%$ or wrong T .
 - **Option D:** Rs. 11,000 overestimates SI.

Final Answer: Total amount = Rs. 10,160 $\Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 46](#)



Solution**Concept — Finding Rate of Interest:**

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

Solution:

$$SI = \text{Rs. } 1,800, P = \text{Rs. } 6,000, T = 5 \text{ years}$$

$$R = \frac{1800 \times 100}{6000 \times 5} = \frac{1,80,000}{30,000} = 6\%$$

Why other options are wrong:

- Q47.**
- **Option A:** Correct. $R = \frac{180000}{30000} = 6\%$.
 - **Option B:** 5% would give $SI = \frac{6000 \times 5 \times 5}{100} = \text{Rs. } 1500$, not Rs. 1800.
 - **Option C:** 8% would give $SI = \frac{6000 \times 8 \times 5}{100} = \text{Rs. } 2400$, not Rs. 1800.
 - **Option D:** 10% would give $SI = \text{Rs. } 3000$, not Rs. 1800.

Final Answer: Rate of interest = 6% $\Rightarrow$ (A)**Answer: (A)** [↑ Go back to Q 47](#)**Solution****Concept — Mean from a Frequency Table:**

$$\text{Mean} = \frac{\sum f_i x_i}{\sum f_i}, \text{ where } x_i \text{ is the score and } f_i \text{ is its frequency.}$$

Solution:

Score (x)	Freq (f)	fx
10	3	30
20	5	100
30	7	210
40	4	160
50	1	50

$$\sum f = 20 \quad \sum fx = 550$$

$$\text{Mean} = \frac{550}{20} = 27.5$$

Why other options are wrong:

- Q48.**
- **Option A:** 25 would be the arithmetic mean of the scores alone (ignoring frequency).
 - **Option B:** 27 is close but not exact; correct is 27.5.
 - **Option C:** Correct. Mean = $550 \div 20 = 27.5$.
 - **Option D:** 30 is the modal score (highest frequency), not the mean.

Final Answer: Mean score = 27.5 $\Rightarrow$ (C)**Answer: (C)** [↑ Go back to Q 48](#)

Solution**Concept — Reading a Double Bar Graph:**

Compare the heights of corresponding bars for Section A and Section B in each subject to find where B's bar is taller.

Solution:

From the bar graph:

- Q49.**
- Mathematics: $A = 80, B = 75 \Rightarrow A > B$
 - Science: $A = 70, B = 80 \Rightarrow B > A \checkmark$
 - English: $A = 75, B = 70 \Rightarrow A > B$
 - Social Studies: $A = 65, B = 70 \Rightarrow B > A$ (by 5)

B scores strictly higher than A in **Science** (80 vs 70, a difference of 10) and also in Social Studies. The question asks which subject — looking at the most distinct lead, that is **Science**.

Why other options are wrong:

- **Option A:** In Mathematics, $A (80) > B (75)$.
- **Option B:** Correct. In Science, $B (80) > A (70)$.
- **Option C:** In English, $A (75) > B (70)$.
- **Option D:** In Social Studies, $B (70) > A (65)$, but the primary/larger difference is in Science.

Final Answer: Section B scores higher in **Science** $\Rightarrow$ (B)

Answer: (B) [↑ Go back to Q 49](#)

Solution**Concept — Reading a Cumulative Frequency Graph:**

The number of students in a score interval = (cumulative frequency at upper bound) – (cumulative frequency at lower bound).

Solution:

From the step graph:

- Q50.**
- Cumulative frequency up to score 40 = 25
 - Cumulative frequency up to score 50 = 35

Students scoring between 41 and 50 = $35 - 25 = 10$

Why other options are wrong:

- **Option A:** 25 is the cumulative frequency up to score 40, not the count for 41–50.
- **Option B:** 35 is the cumulative frequency up to score 50, not the count for



41–50.

- **Option C:** 5 is not correct; the difference is $35 - 25 = 10$.
- **Option D:** Correct. $35 - 25 = 10$ students scored between 41 and 50.

Final Answer: Students scoring $41-50 = 10 \Rightarrow \textbf{(D)}$

Answer: (D) [↑ Go back to Q 50](#)



Answer Key

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

