ATMA Quantitative Skills

Sample Paper – 4

Duration: 60 Minutes **Maximum Marks: 60**

Instructions

- This paper contains **60** Multiple Choice Questions (Single Correct Answer) across two sections — **Part I (Q1–Q30)** and **Part II (Q31–Q60)** — modelled on the Quantitative Skills portion of **ATMA** entrance.
- Each correct answer carries **+1 mark**. There is **a penalty of** 0.25 **mark** for each incorrect answer. Unattempted questions receive **0** marks.
- Only **one** option is correct. Choose carefully.
- Syllabus level: **Quantitative aptitude (arithmetic, algebra, geometry, modern maths, data interpretation)**
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Part I — Quantitative Skills I

Q1. The number $N = 2^4 \times 3^2 \times 5$. How many of the positive divisors of N are even?

(A) 20

(B) 24

(C) 30

(D) 6

Q2. What is the remainder when 7^{82} is divided by 5?

(A) 1

(B) 2

(C) 4

(D) 3

Q3. The price of an article is increased by 25% and then decreased by 20%. The net percentage change in the price is:

(A) No change

(B) 5% increase

(C) 5% decrease

(D) 4% increase

Q4. In an election between two candidates, the winner secured 58% of the valid votes and won by $9{,}600$ votes. The total number of valid votes was:

(A) $48{,}000$

(B) $72{,}000$

(C) $80{,}000$

(D) $60{,}000$

Q5. A and B start a business investing Rs. $45{,}000$ and Rs. $54{,}000$ respectively. At the end of the year the total profit is Rs. $22{,}000$. B's share of the profit is:

(A) Rs. $10{,}000$

(B) Rs. $12{,}000$

(C) Rs. $11{,}000$

(D) Rs. $13{,}200$

Q6. The average age of a group of 10 persons is 25 years. When one more person joins, the average increases by 1 year. The age of the new person is:

(A) 26 years

(B) 35 years

(C) 36 years

(D) 30 years

Q7. A shopkeeper marks his goods 40% above cost price and allows a discount of 25% on the marked price. His profit or loss percentage is:

(A) 5% profit

(B) 15% profit

(C) 5% loss

(D) 10% profit

Q8. By selling an article for Rs. 96, a man loses 20%. To gain 20%, he should sell it for:

(A) Rs. 120

(B) Rs. 132

(C) Rs. 140

(D) Rs. 144

Q9. A sum of Rs. $8{,}000$ is invested at 10% per annum compound interest, compounded annually. The compound interest at the end of 2 years is:

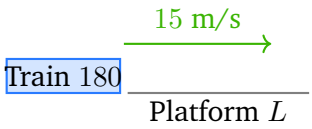
(A) Rs. $1{,}600$

(B) Rs. $1{,}680$

(C) Rs. $1{,}700$

(D) Rs. $1{,}720$

Q10. A train 180 m long, running at 54 km/h, crosses a platform in 20 seconds. The length of the platform is:



(A) 100 m

(B) 150 m

(C) 120 m

(D) 130 m

Q11. Two trains start at the same time from stations A and B, 330 km apart, and move towards each other at 60 km/h and 50 km/h. After how many hours do they meet?

(A) 3 hours

(B) 2.5 hours

(C) 4 hours

(D) 3.5 hours

Q12. A can do a piece of work in 12 days and B in 18 days. Working together, they can complete the work in:

(A) 6 days

(B) 7.2 days

(C) 7.5 days

(D) 8 days

Q13. Two pipes A and B can fill a tank in 20 minutes and 30 minutes respectively. If both are opened together, the tank will be filled in:

(A) 25 minutes

(B) 15 minutes

(C) 10 minutes

(D) 12 minutes

Q14. The sum of two numbers is 20 and their difference is 4. The product of the two numbers is:

(A) 84

(B) 90

(C) 96

(D) 100

Q15. If the roots of the quadratic equation $x^2 - 7x + k = 0$ differ by 1, then the value of k is:

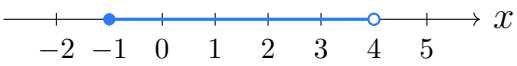
(A) 12

(B) 10

(C) 6

(D) 8

Q16. The number of integers x satisfying $-3 \leq 2x - 1 < 7$ is (the number line below shows the solution set $-1 \leq x < 4$):



(A) 4

(B) 5

(C) 6

(D) 3

Q17. The sum of the first 20 terms of the arithmetic progression $3, 7, 11, 15, \ldots$ is:

(A) 780

(B) 800

(C) 840

(D) 820

Q18. In how many ways can the letters of the word **LEADER** be arranged?

(A) 720

(B) 120

(C) 360

(D) 240

Q19. A committee of 3 persons is to be chosen from 5 men and 4 women so that the committee has exactly 2 men and 1 woman. The number of ways is:

(A) 40

(B) 30

(C) 60

(D) 20

Q20. Two fair dice are thrown together. The probability that the sum of the numbers on the two dice is 9 is:

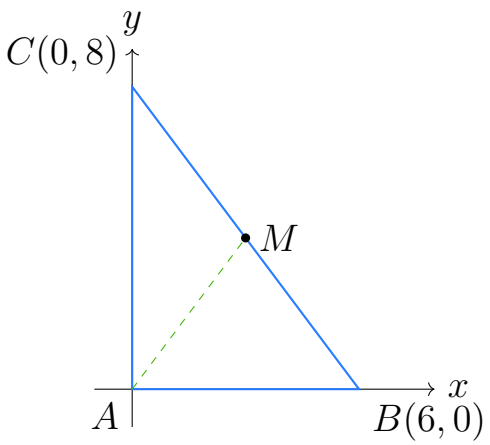
(A) $\frac{1}{6}$

(B) $\frac{1}{9}$

(C) $\frac{1}{12}$

(D) $\frac{1}{4}$

Q21. In the coordinate plane below, the triangle has vertices $A(0,0)$, $B(6,0)$ and $C(0,8)$. Find the length of the median from A to the midpoint M of BC.



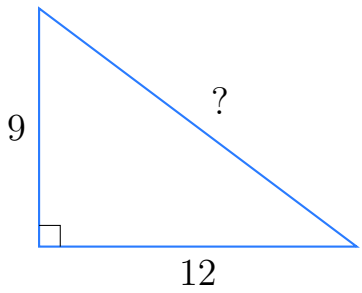
(A) 4

(B) 6

(C) 4.5

(D) 5

Q22. In the right-angled triangle below, the two legs measure 9 cm and 12 cm. The length of the hypotenuse is:



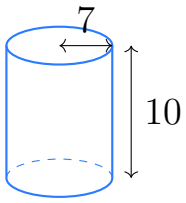
(A) 13 cm

(B) 14 cm

(C) 15 cm

(D) 21 cm

Q23. A solid cylinder has radius 7 cm and height 10 cm. Its total surface area is (take $\pi = \frac{22}{7}$):



(A) 748 cm^2

(B) 440 cm^2

(C) 308 cm^2

(D) 660 cm^2

Q24. The area of a circle is 154 cm^2. Its circumference is (take $\pi = \frac{22}{7}$):

(A) 36 cm

(B) 44 cm

(C) 48 cm

(D) 22 cm

Q25. If $\log_2 x = 5$, then the value of x is:

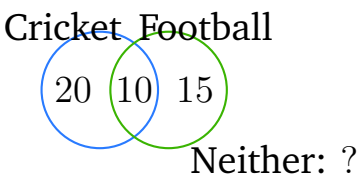
(A) 10

(B) 25

(C) 16

(D) 32

Q26. In a class of 50 students, 30 play cricket, 25 play football and 10 play both. The number of students who play neither game is:



(A) 3

(B) 7

(C) 5

(D) 10

Q27. Directions (Q27–Q29): The table shows the number of units (in thousands) produced by a factory over four years.

Year	2021	2022	2023
Item P	40	50	60
Item Q	30	45	55

What is the total number of units (P and Q together) produced in 2022?

(A) 95,000

(B) 90,000

(C) 70,000

(D) 100,000

Q28. (Refer to the production table above.) The percentage increase in the production of Item P from 2021 to 2023 is:

(A) 40%

(B) 50%

(C) 20%

(D) 60%

Q29. (Refer to the production table above.) In which year is the ratio of Item P production to Item Q production the highest?

(A) 2022

(B) 2023

(C) Equal in all years

(D) 2021

Q30. **Data Sufficiency:** What is the value of the two-digit number X?
Statement I: The sum of the digits of X is 9.
Statement II: X is divisible by 9 and lies between 40 and 50.
Choose the correct option.

(A) Statement I alone is sufficient.

(B) Statement II alone is sufficient, but Statement I alone is not.

(C) Statement II alone is sufficient, and Statement I alone is also sufficient.

(D) Both statements together are needed.

Part II — Quantitative Skills II

Q31. The HCF of two numbers is 12 and their LCM is 144. If one number is 36, the other number is:

(A) 48

(B) 24

(C) 60

(D) 72

Q32. The unit digit of 3^{47} is:

(A) 1

(B) 7

(C) 9

(D) 3

Q33. If A's salary is 20% less than B's salary, then by what percentage is B's salary more than A's salary?

(A) 20%

(B) 22%

(C) 25%

(D) 30%

Q34. In an examination, 40% of the students failed in Mathematics and 30% failed in English. If 10% failed in both, the percentage of students who passed in both subjects is:

(A) 30%

(B) 20%

(C) 50%

(D) 40%

Q35. If $\frac{a}{b} = \frac{3}{4}$ and $\frac{b}{c} = \frac{8}{9}$, then $a : c$ equals:

(A) $2 : 3$

(B) $3 : 8$

(C) $1 : 2$

(D) $3 : 4$

Q36. In what ratio must rice costing Rs. 30 per kg be mixed with rice costing Rs. 45 per kg so that the mixture costs Rs. 35 per kg?

(A) $1 : 1$

(B) $2 : 1$

(C) $1 : 2$

(D) $3 : 2$

Q37. A trader sells two articles at Rs. $1{,}200$ each. On one he gains 20% and on the other he loses 20%. His overall result on the two transactions together is:

(A) No profit no loss

(B) 4% profit

(C) 4% loss

(D) 2% loss

Q38. A shopkeeper allows two successive discounts of 10% and 20% on an article. The single equivalent discount is:

(A) 30%

(B) 25%

(C) 32%

(D) 28%

Q39. The simple interest on a sum of money for 3 years at 8% per annum is Rs. $1{,}440$. The principal is:

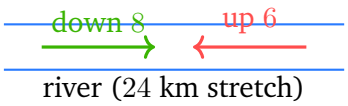
(A) Rs. 6,000

(B) Rs. 5,000

(C) Rs. 7,200

(D) Rs. 4,800

Q40. A boat goes 24 km downstream in 3 hours and the same distance upstream in 4 hours. The speed of the stream is:



(A) 0.5 km/h

(B) 1 km/h

(C) 2 km/h

(D) 1.5 km/h

Q41. A man covers a certain distance at 40 km/h and returns along the same route at 60 km/h. His average speed for the whole journey is:

(A) 50 km/h

(B) 52 km/h

(C) 48 km/h

(D) 45 km/h

Q42. 15 men can complete a piece of work in 20 days. How many days will 25 men take to do the same work?

(A) 15 days

(B) 10 days

(C) 14 days

(D) 12 days

Q43. A pipe can fill a tank in 15 minutes and a leak at the bottom can empty the full tank in 30 minutes. If both work together, the tank will be filled in:

(A) 30 minutes

(B) 25 minutes

(C) 20 minutes

(D) 45 minutes

Q44. If $3x + 2y = 18$ and $x + y = 7$, then the value of $x - y$ is:

(A) -3

(B) 1

(C) 3

(D) -1

Q45. The roots of the equation $x^2 - 5x + 6 = 0$ are:

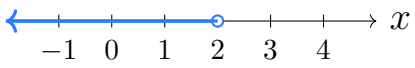
(A) 1 and 6

(B) -2 and -3

(C) 2 and 3

(D) 1 and 5

Q46. If $5 - 2x > 1$, then which of the following is true? (The number line marks the boundary at $x = 2$.)



(A) $x > 2$

(B) $x > 3$

(C) $x < 3$

(D) $x < 2$

Q47. The sum of the infinite geometric series $1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27} + \cdots$ is:

(A) $\frac{3}{2}$

(B) 2

(C) $\frac{4}{3}$

(D) 3

Q48. How many three-digit numbers can be formed using the digits $1, 2, 3, 4, 5$ with no digit repeated?

(A) 125

(B) 60

(C) 120

(D) 20

Q49. The value of $\binom{8}{2}$ is:

(A) 16

(B) 56

(C) 28

(D) 40

Q50. A card is drawn at random from a well-shuffled pack of 52 playing cards. The probability that it is a face card (King, Queen or Jack) is:

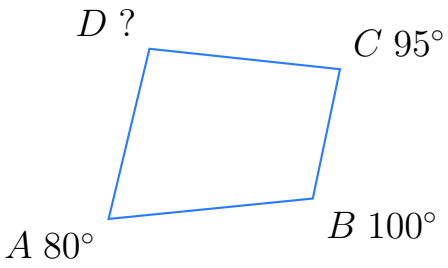
(A) $\frac{1}{13}$

(B) $\frac{1}{4}$

(C) $\frac{1}{26}$

(D) $\frac{3}{13}$

Q51. In the quadrilateral $ABCD$ below, three angles are $\angle A = 80°$, $\angle B = 100°$ and $\angle C = 95°$. Find $\angle D$.



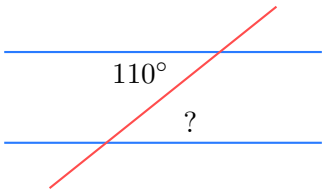
(A) $85°$

(B) $90°$

(C) $80°$

(D) $95°$

Q52. Two parallel lines are cut by a transversal as shown. If one of the co-interior (allied) angles is $110°$, the other co-interior angle is:



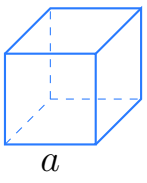
(A) $110°$

(B) $70°$

(C) $90°$

(D) $250°$

Q53. A cube has a total surface area of 96 cm^2. Its volume is:



(A) 36 cm^3

(B) 48 cm^3

(C) 64 cm^3

(D) 96 cm^3

Q54. The perimeter of a rectangle is 48 cm and its length is 14 cm. The area of the rectangle is:

(A) 112 cm^2

(B) 120 cm^2

(C) 168 cm^2

(D) 140 cm^2

Q55. The value of $\dfrac{\sqrt{75}-\sqrt{12}}{\sqrt{3}}$ is:

(A) 3

(B) 5

(C) 2

(D) $\sqrt{3}$

Q56. If $f(x) = 2x^2 - 3x + 1$, then the value of $f(-1)$ is:

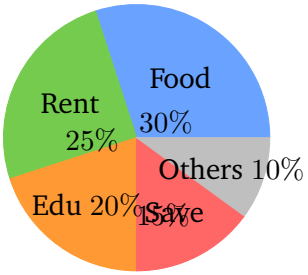
(A) 0

(B) 6

(C) -4

(D) 4

Q57. Directions (Q57–Q59): The pie chart shows how a family's monthly budget of Rs. $36{,}000$ is distributed.



The amount allotted to Rent is:

(A) 7,200

(B) 10,800

(C) 9,000

(D) 5,400

Q58. (Refer to the budget pie chart above.) The amount spent on Food exceeds the amount spent on Education by:

(A) Rs. 5,400

(B) Rs. 2,400

(C) Rs. 4,800

(D) Rs. 3,600

Q59. (Refer to the budget pie chart above.) The central angle of the sector representing Savings is:

(A) 54°

(B) 45°

(C) 60°

(D) 36°

Q60. **Data Sufficiency:** Is the positive integer n even?

Statement I: n^2 is even.

Statement II: $n + 1$ is odd.

Choose the correct option.

(A) Only Statement I is sufficient; Statement II is not.

(B) Each statement alone is sufficient.

(C) Neither statement is sufficient.

(D) Both statements together are needed but neither alone.

Detailed Solutions

Q1.

Solution

Concept — Counting divisors: For $N = 2^a \times 3^b \times 5^c$, total divisors $= (a+1)(b+1)(c+1)$. An even divisor must contain at least one factor of 2.

Step 1 — Total divisors: $N = 2^4 \times 3^2 \times 5^1$, so total $= (4+1)(2+1)(1+1) = 5 \times 3 \times 2 = 30$.

Step 2 — Odd divisors: Odd divisors use no factor of 2, i.e. from $3^2 \times 5^1$: $(2+1)(1+1) = 6$.

Step 3 — Even divisors: Even $=$ total $-$ odd $= 30 - 6 = 24$.

Why other options are wrong:

- (C) 30 is the total number of divisors, not just the even ones.
- (D) 6 counts the odd divisors only.

Final Answer: Even divisors $= 24 \Rightarrow$ B

Answer: (B) Go Back to Q 1

Q2.

Solution

Concept — Cyclicity of remainders: Powers of 7 modulo 5 repeat in a short cycle.

Step 1 — Reduce base: $7 \equiv 2 \pmod 5$, so $7^{82} \equiv 2^{82} \pmod 5$.

Step 2 — Cycle of $2 \bmod 5$**:** $2^1 = 2,\ 2^2 = 4,\ 2^3 = 3,\ 2^4 = 1$, then it repeats with period 4.

Step 3 — Locate 82**:** $82 = 4 \times 20 + 2$, so $2^{82} \equiv 2^2 = 4 \pmod 5$.

Why other options are wrong:

- (A) 1 would correspond to an exponent that is a multiple of 4.
- (D) 3 corresponds to exponent $\equiv 3 \pmod 4$.

Final Answer: Remainder $= 4 \Rightarrow$ C

Answer: (C) Go Back to Q 2

Q3.

Solution

Concept — Successive percentage change: Apply factors in sequence to an assumed base.

Step 1 — Take base 100**:** After 25% increase: $100 \times 1.25 = 125$.

Step 2 — Apply 20% **decrease:** $125 \times 0.80 = 100$.

Step 3 — Net change: Final $= 100 =$ original, so there is no net change.

Why other options are wrong:

- (B)/(C) A $\pm 5\%$ change does not arise here; the factors 1.25 and 0.80 are exact reciprocals.
- (D) 4% increase has no basis.

Final Answer: No change $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q 3

Q4.

Solution

Concept — Vote margin as a percentage: The winning margin equals the difference of the two vote shares.

Step 1 — Loser's share: Loser gets $100\% - 58\% = 42\%$.

Step 2 — Margin in percent: Difference $= 58\% - 42\% = 16\%$ of total valid votes.

Step 3 — Solve for total: 16% of total $= 9{,}600 \Rightarrow$ total $= \dfrac{9{,}600}{0.16} = 60{,}000$.

Why other options are wrong:

- (A) $48{,}000$ wrongly uses 20% as the margin.
- (B)/(C) These do not satisfy $16\% \times$ total $= 9{,}600$.

Final Answer: Total valid votes $= 60{,}000 \Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q 4

Q5.

Solution

Concept — Partnership profit sharing: When investments run for equal time, profit is split in the ratio of capitals.

Step 1 — Capital ratio: $A : B = 45{,}000 : 54{,}000 = 5 : 6$.

Step 2 — Total ratio parts: $5 + 6 = 11$ parts $=$ Rs. $22{,}000$, so 1 part $=$ Rs. $2{,}000$.

Step 3 — B's share: $6 \times 2{,}000 =$ Rs. $12{,}000$.

Why other options are wrong:

- (A) Rs. $10{,}000$ is A's share, not B's.
- (C)/(D) Do not match the $5 : 6$ split of Rs. $22{,}000$.

Final Answer: B's share $=$ Rs. $12{,}000 \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q 5

Q6.

Solution

Concept — Effect of a new member on the average: New person's age $=$ new total $-$ old total.

Step 1 — Old total: $10 \times 25 = 250$ years.

Step 2 — New average and total: New average $= 26$ for 11 persons, total $= 11 \times 26 = 286$.

Step 3 — New person's age: $286 - 250 = 36$ years.

Why other options are wrong:

- (A) 26 is the new average, not the new person's age.
- (B) 35 forgets that the new person also raises his own slot of the average.

Final Answer: New person's age $= 36$ years $\Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q 6

Q7.

Solution

Concept — Marked price, discount and profit: Selling price $=$ marked price $\times(1 -$ discount$)$; compare with cost price.

Step 1 — Take CP $= 100$: Marked price $= 100 \times 1.40 = 140$.

Step 2 — Apply discount: SP $= 140 \times (1 - 0.25) = 140 \times 0.75 = 105$.

Step 3 — Profit percent: Profit $= 105 - 100 = 5$ on CP 100, i.e. 5% profit.

Why other options are wrong:

- (B) 15% ignores the discount.
- (C) There is a profit, not a loss.

Final Answer: 5% profit $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q 7

Q8.

Solution

Concept — Recover CP, then set target SP: First find cost price from the loss, then compute SP for the desired gain.

Step 1 — Find CP: SP $= 96$ at 20% loss $\Rightarrow$ CP $= \dfrac{96}{0.80} = 120$.

Step 2 — SP for 20% gain: $120 \times 1.20 = 144$.

Why other options are wrong:

- (A) Rs. 120 is the cost price (no gain).
- (B)/(C) Do not equal 120×1.20.

Final Answer: Required SP $=$ Rs. $144 \Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q 8

Q9.

Solution

Concept — Compound interest: $A = P\left(1 + \frac{r}{100}\right)^n$ and CI $= A - P$.

Step 1 — Amount after 2 years: $A = 8000 \times (1.1)^2 = 8000 \times 1.21 = 9680$.

Step 2 — Compound interest: CI $= 9680 - 8000 = 1680$.

Why other options are wrong:

- (A) Rs. $1{,}600$ is the simple interest for 2 years.
- (C)/(D) Do not equal $8000(1.21) - 8000$.

Final Answer: CI $=$ Rs. $1{,}680 \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q 9

Q10.

Solution

Concept — Train crossing a platform: Distance covered $=$ length of train $+$ length of platform.

Step 1 — Convert speed: 54 km/h $= 54 \times \frac{5}{18} = 15$ m/s.

Step 2 — Total distance: Distance $=$ speed $\times$ time $= 15 \times 20 = 300$ m.

Step 3 — Platform length: $300 - 180 = 120$ m.

Why other options are wrong:

- (A) 100 m uses the wrong total distance.
- (B) 150 m forgets to subtract the train length correctly.

Final Answer: Platform length $= 120$ m $\Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q 10

Q11.

Solution

Concept — Relative speed (approaching): When two bodies move towards each other, their speeds add.

Step 1 — Relative speed: $60 + 50 = 110$ km/h.

Step 2 — Time to meet: Time $= \dfrac{\text{distance}}{\text{relative speed}} = \dfrac{330}{110} = 3$ hours.

Why other options are wrong:

- (B) 2.5 h uses too high a combined speed.
- (C) 4 h uses too low a combined speed.

Final Answer: They meet after 3 hours $\Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q 11

Q12.

Solution

Concept — Combined work rate: Add the individual one-day rates.

Step 1 — Individual rates: $A = \dfrac{1}{12}$, $B = \dfrac{1}{18}$ of the work per day.

Step 2 — Combined rate: $\dfrac{1}{12} + \dfrac{1}{18} = \dfrac{3}{36} + \dfrac{2}{36} = \dfrac{5}{36}$ per day.

Step 3 — Time together: Time $= \dfrac{36}{5} = 7.2$ days.

Why other options are wrong:

- (A) 6 days assumes equal 12-day workers.
- (C)/(D) Do not equal $\frac{36}{5}$.

Final Answer: Time together $= 7.2$ days $\Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q 12

Q13.

Solution

Concept — Two filling pipes together: Add the filling rates.

Step 1 — Rates: $A = \frac{1}{20}$, $B = \frac{1}{30}$ of the tank per minute.

Step 2 — Combined rate: $\frac{1}{20} + \frac{1}{30} = \frac{3}{60} + \frac{2}{60} = \frac{5}{60} = \frac{1}{12}$ per minute.

Step 3 — Time: Time $= 12$ minutes.

Why other options are wrong:

- (A) 25 min adds the times instead of the rates.
- (B)/(C) Do not equal the reciprocal of $\frac{1}{12}$.

Final Answer: Tank filled in 12 minutes $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q 13

Q14.

Solution

Concept — Sum and difference of two numbers: Solve the linear system, then multiply.

Step 1 — Set up: $x + y = 20$ and $x - y = 4$.

Step 2 — Solve: Adding gives $2x = 24 \Rightarrow x = 12$; then $y = 20 - 12 = 8$.

Step 3 — Product: $12 \times 8 = 96$.

Why other options are wrong:

- (A) $84 = 14 \times 6$, wrong split.
- (D) $100 = 10 \times 10$ would need difference 0.

Final Answer: Product $= 96 \Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q 14

Q15.

Solution

Concept — Roots from sum and difference: For $x^2 - 7x + k = 0$, sum of roots $= 7$ and product $= k$.

Step 1 — Use the difference: Roots differ by 1 with sum 7, so roots are $\frac{7+1}{2} = 4$ and $\frac{7-1}{2} = 3$.

Step 2 — Find k: $k =$ product $= 4 \times 3 = 12$.

Why other options are wrong:

- (B) $10 = 5 \times 2$, but those roots differ by 3.
- (D) 8 does not give roots that sum to 7 and differ by 1.

Final Answer: $k = 12 \Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q 15

Q16.

Solution

Concept — Solving a compound inequality: Isolate x in the middle, then count integers.

Step 1 — Add 1 throughout: $-3 \le 2x - 1 < 7 \Rightarrow -2 \le 2x < 8$.

Step 2 — Divide by 2: $-1 \le x < 4$.

Step 3 — Count integers: $x \in \{-1, 0, 1, 2, 3\}$, which is 5 integers.

Why other options are wrong:

- (A) 4 drops the endpoint $x = -1$ (the $\le$ includes it).
- (C) 6 wrongly includes $x = 4$, but the right end is strict.

Final Answer: 5 integers $\Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q 16

Q17.

Solution

Concept — Sum of an AP: $S_n = \frac{n}{2}\left[2a + (n-1)d\right]$.

Step 1 — Identify a, d, n**:** $a = 3$, $d = 4$, $n = 20$.

Step 2 — Apply the formula: $S_{20} = \frac{20}{2}\left[2(3) + 19(4)\right] = 10\left[6 + 76\right] = 10 \times 82$.

Step 3 — Compute: $S_{20} = 820$.

Why other options are wrong:

- (A) 780 uses 19 terms.
- (C) 840 uses an incorrect bracket value.

Final Answer: $S_{20} = 820 \Rightarrow$ D

Answer: (D) Go Back to Q 17

Q18.

Solution

Concept — Permutations with a repeated letter: Arrangements $= \frac{n!}{(\text{repeats})!}$.

Step 1 — Count letters: LEADER has 6 letters with the letter E repeated twice.

Step 2 — Apply formula: Arrangements $= \frac{6!}{2!} = \frac{720}{2} = 360$.

Why other options are wrong:

- (A) $720 = 6!$ ignores the repeated E.
- (B) $120 = 5!$ uses the wrong count.

Final Answer: 360 arrangements $\Rightarrow$ C

Answer: (C) Go Back to Q 18

Q19.

Solution

Concept — Selection with fixed composition: Multiply the ways of choosing men by the ways of choosing women.

Step 1 — Choose 2 men from 5: $\binom{5}{2} = 10$.

Step 2 — Choose 1 woman from 4: $\binom{4}{1} = 4$.

Step 3 — Multiply: $10 \times 4 = 40$.

Why other options are wrong:

- (B) 30 uses an incorrect men-count.
- (C) 60 overcounts the women choices.

Final Answer: 40 ways $\Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q 19

Q20.

Solution

Concept — Probability with two dice: Favourable outcomes over 36 equally likely outcomes.

Step 1 — List sum $= 9$**:** $(3,6), (4,5), (5,4), (6,3)$ — that is 4 outcomes.

Step 2 — Probability: $\dfrac{4}{36} = \dfrac{1}{9}$.

Why other options are wrong:

- (A) $\frac{1}{6}$ would need 6 favourable outcomes.
- (C) $\frac{1}{12}$ would need 3 favourable outcomes.

Final Answer: Probability $= \dfrac{1}{9} \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q 20

Q21.

Solution

Concept — Median to the hypotenuse / distance formula: The midpoint of BC is M, and the median length is the distance AM.

Step 1 — Midpoint of BC: $M = \left(\frac{6+0}{2}, \frac{0+8}{2}\right) = (3, 4)$.

Step 2 — Distance AM: $AM = \sqrt{(3-0)^2 + (4-0)^2} = \sqrt{9+16} = \sqrt{25} = 5$.

Why other options are wrong:

- (A) 4 takes only the y-coordinate of M.
- (B) 6 takes a side length, not the median.

Final Answer: Median $AM = 5 \Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q 21

Q22.

Solution

Concept — Pythagoras theorem: Hypotenuse $= \sqrt{\text{leg}_1^2 + \text{leg}_2^2}$.

Step 1 — Square the legs: $9^2 + 12^2 = 81 + 144 = 225$.

Step 2 — Take the root: $\sqrt{225} = 15$ cm.

Why other options are wrong:

- (A) 13 comes from the 5-12-13 triple, not 9-12.
- (D) $21 = 9 + 12$ just adds the legs.

Final Answer: Hypotenuse $= 15$ cm $\Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q 22

Q23.

Solution

Concept — Total surface area of a cylinder: TSA $= 2\pi r(r + h)$.

Step 1 — Substitute: $r = 7$, $h = 10$, so $r + h = 17$.

Step 2 — Compute: TSA $= 2 \times \dfrac{22}{7} \times 7 \times 17 = 2 \times 22 \times 17 = 748$ cm^2.

Why other options are wrong:

- (B) 440 is the curved surface area $2\pi rh$.
- (C) 308 is the area of the two circular faces $2\pi r^2$.

Final Answer: TSA $= 748$ cm^2 $\Rightarrow$ A

Answer: (A) Go Back to Q 23

Q24.

Solution

Concept — Circle: area to circumference: Find r from the area, then use $C = 2\pi r$.

Step 1 — Find radius: $\pi r^2 = 154 \Rightarrow \dfrac{22}{7} r^2 = 154 \Rightarrow r^2 = 49 \Rightarrow r = 7$ cm.

Step 2 — Circumference: $C = 2 \times \dfrac{22}{7} \times 7 = 44$ cm.

Why other options are wrong:

- (D) 22 is πr, only half the circumference.
- (A)/(C) Do not equal $2\pi r$ with $r = 7$.

Final Answer: Circumference $= 44$ cm $\Rightarrow$ B

Answer: (B) Go Back to Q 24

Q25.

Solution

Concept — Definition of a logarithm: $\log_b x = y \Leftrightarrow x = b^y$.

Step 1 — Rewrite: $\log_2 x = 5 \Rightarrow x = 2^5$.

Step 2 — Evaluate: $2^5 = 32$.

Why other options are wrong:

- (C) $16 = 2^4$ corresponds to $\log_2 x = 4$.
- (B) $25 = 5^2$ mixes up base and exponent.

Final Answer: $x = 32 \Rightarrow$ D

Answer: (D) Go Back to Q 25

Q26.

Solution

Concept — Inclusion-exclusion (Venn): $n(C \cup F) = n(C) + n(F) - n(C \cap F)$; "neither" = total $- n(C \cup F)$.

Step 1 — Union: $n(C \cup F) = 30 + 25 - 10 = 45$.

Step 2 — Neither: $50 - 45 = 5$ students.

Why other options are wrong:

- (B) 7 would follow from a different "both" value.
- (D) 10 is the count playing both games, not neither.

Final Answer: Neither game $= 5 \Rightarrow$ C

Answer: (C) Go Back to Q 26

Q27.

Solution

Concept — Reading a data table: Add the relevant cells for the chosen year.

Step 1 — Read 2022 column: Item P $= 50$ thousand, Item Q $= 45$ thousand.

Step 2 — Total: $50 + 45 = 95$ thousand $= 95{,}000$ units.

Why other options are wrong:

- (C) $70{,}000$ uses the 2021 figures.
- (D) $100{,}000$ uses the 2023 P value with a wrong Q.

Final Answer: Total in 2022 $= 95{,}000 \Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q 27

Q28.

Solution

Concept — Percentage increase: $\dfrac{\text{final} - \text{initial}}{\text{initial}} \times 100$.

Step 1 — Read values: Item P in 2021 $= 40$, in 2023 $= 60$.

Step 2 — Compute increase: $\dfrac{60 - 40}{40} \times 100 = \dfrac{20}{40} \times 100 = 50\%$.

Why other options are wrong:

- (A) 40% wrongly divides by 50.
- (C) 20% uses the absolute change as a percent.

Final Answer: Increase $= 50\% \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q 28

Q29.

Solution

Concept — Comparing ratios across categories: Compute $\dfrac{P}{Q}$ for each year and pick the largest.

Step 1 — Year ratios: 2021: $\dfrac{40}{30} \approx 1.333$; 2022: $\dfrac{50}{45} \approx 1.111$; 2023: $\dfrac{60}{55} \approx 1.091$.

Step 2 — Largest: The highest ratio is in 2021.

Why other options are wrong:

- (A)/(B) 2022 and 2023 have lower P:Q ratios.
- (C) The ratios are not equal across years.

Final Answer: Ratio highest in 2021 $\Rightarrow$ D

Answer: (D) Go Back to Q 29

Q30.

Solution

Concept — Data sufficiency: A statement is sufficient if it pins down a unique value of X.

Step 1 — Test Statement I: Digit sum 9 gives many numbers: $18, 27, 36, 45, 54, \ldots$ — not unique. Insufficient alone.

Step 2 — Test Statement II: Divisible by 9 and between 40 and 50: only 45 qualifies. Unique, so sufficient alone.

Step 3 — Conclusion: Statement II alone is sufficient; Statement I alone is not.

Why other options are wrong:

- (A) Statement I gives many values, so it is not sufficient.
- (C) Statement I is not sufficient, so this is false.

Final Answer: II alone sufficient $\Rightarrow$ B

Answer: (B) Go Back to Q 30

Q31.

Solution

Concept — HCF $\times$ LCM: For two numbers, product of the numbers $=$ HCF $\times$ LCM.

Step 1 — Set up: $36 \times \text{other} = 12 \times 144$.

Step 2 — Solve: $\text{other} = \dfrac{12 \times 144}{36} = \dfrac{1728}{36} = 48$.

Why other options are wrong:

- (B) 24 does not satisfy $36 \times \text{other} = 1728$.

- (D) 72 gives a product that is too large.

Final Answer: Other number $= 48 \Rightarrow$ A

Answer: (A) Go Back to Q 31

Q32.

Solution

Concept — Cyclicity of unit digits: Unit digits of powers of 3 cycle as $3, 9, 7, 1$ with period 4.

Step 1 — Locate exponent: $47 = 4 \times 11 + 3$, so the remainder is 3.

Step 2 — Read the cycle: Position 3 in $(3, 9, 7, 1)$ is 7.

Why other options are wrong:

- (D) 3 is the unit digit when the exponent $\equiv 1 \pmod 4$.
- (A) 1 corresponds to a multiple of 4 exponent.

Final Answer: Unit digit $= 7 \Rightarrow$ B

Answer: (B) Go Back to Q 32

Q33.

Solution

Concept — Reversing a percentage comparison: If A is $x\%$ less than B, the reverse percentage is computed on the smaller base A.

Step 1 — Take $B = 100$: Then $A = 100 - 20 = 80$.

Step 2 — B more than A: $\dfrac{100 - 80}{80} \times 100 = \dfrac{20}{80} \times 100 = 25\%$.

Why other options are wrong:

- (A) 20% wrongly keeps the same base.
- (B) 22% has no basis.

Final Answer: B is 25% more than A $\Rightarrow$ C

Answer: (C) Go Back to Q 33

Q34.

Solution

Concept — Failures via inclusion-exclusion: Failed in at least one = failed Maths + failed English − failed both.

Step 1 — Failed at least one: $40 + 30 - 10 = 60\%$.

Step 2 — Passed both: $100\% - 60\% = 40\%$.

Why other options are wrong:

- (A) 30% ignores the overlap correction.
- (C) 50% uses 50 for the failure union.

Final Answer: Passed both $= 40\% \Rightarrow$ D

Answer: (D) Go Back to Q 34

Q35.

Solution

Concept — Chaining ratios: $\frac{a}{c} = \frac{a}{b} \times \frac{b}{c}$.

Step 1 — Multiply: $\frac{a}{c} = \frac{3}{4} \times \frac{8}{9} = \frac{24}{36}$.

Step 2 — Simplify: $\frac{24}{36} = \frac{2}{3}$, so $a : c = 2 : 3$.

Why other options are wrong:

- (B) $3 : 8$ multiplies the wrong terms.
- (D) $3 : 4$ is just $a : b$.

Final Answer: $a : c = 2 : 3 \Rightarrow$ A

Answer: (A) Go Back to Q 35

Q36.

Solution

Concept — Alligation: Ratio $= \dfrac{\text{dearer} - \text{mean}}{\text{mean} - \text{cheaper}}$.

Step 1 — Apply alligation: Cheaper $= 30$, dearer $= 45$, mean $= 35$.

Step 2 — Compute ratio: $\dfrac{45-35}{35-30} = \dfrac{10}{5} = \dfrac{2}{1}$, so cheaper : dearer $= 2:1$.

Why other options are wrong:

- (C) $1:2$ reverses the ratio.
- (A) $1:1$ would give a mean of 37.5.

Final Answer: Ratio $= 2:1 \Rightarrow$ B

Answer: (B) Go Back to Q 36

Q37.

Solution

Concept — Equal SP, gain and loss of same percent: Selling two items at the same price with $+x\%$ and $-x\%$ always gives an overall loss of $\left(\dfrac{x}{10}\right)^2\%$.

Step 1 — Find each CP: Gain item: CP $= \dfrac{1200}{1.2} = 1000$. Loss item: CP $= \dfrac{1200}{0.8} = 1500$.

Step 2 — Totals: Total CP $= 1000 + 1500 = 2500$; total SP $= 1200 + 1200 = 2400$.

Step 3 — Result: Loss $= 2500 - 2400 = 100$ on 2500, i.e. $\dfrac{100}{2500} \times 100 = 4\%$ loss.

Why other options are wrong:

- (A) Equal SP with equal $\pm$ percent is never break-even.
- (B) It is a loss, not a profit.

Final Answer: 4% loss $\Rightarrow$ C

Answer: (C) Go Back to Q 37

Q38.

Solution

Concept — Successive discounts: Combine via the product of the remaining fractions.

Step 1 — Remaining after each: $(1-0.10)(1-0.20) = 0.90 \times 0.80 = 0.72$.

Step 2 — Single discount: $1 - 0.72 = 0.28 = 28\%$.

Why other options are wrong:

- (A) 30% just adds the two discounts.
- (C) 32% has no basis.

Final Answer: Single equivalent discount $= 28\% \Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q 38

Q39.

Solution

Concept — Simple interest: $\text{SI} = \dfrac{P \times R \times T}{100}$, so $P = \dfrac{\text{SI} \times 100}{R \times T}$.

Step 1 — Substitute: $P = \dfrac{1440 \times 100}{8 \times 3} = \dfrac{144000}{24}$.

Step 2 — Compute: $P = 6000$.

Why other options are wrong:

- (B) $5{,}000$ gives SI $= 1200$, not 1440.
- (C) $7{,}200$ gives SI $= 1728$.

Final Answer: Principal $=$ Rs. $6{,}000 \Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q 39

Q40.

Solution

Concept — Boats and streams: Downstream speed $= b + s$, upstream $= b - s$; stream speed $= \dfrac{\text{down} - \text{up}}{2}$.

Step 1 — Find each speed: Downstream $= \dfrac{24}{3} = 8$ km/h; upstream $= \dfrac{24}{4} = 6$ km/h.

Step 2 — Stream speed: $\dfrac{8 - 6}{2} = 1$ km/h.

Why other options are wrong:

- (C) 2 km/h forgets to halve the difference.
- (A) 0.5 km/h halves twice.

Final Answer: Stream speed $= 1$ km/h $\Rightarrow$ B

Answer: (B) Go Back to Q 40

Q41.

Solution

Concept — Average speed for equal distances: Average $= \dfrac{2v_1v_2}{v_1 + v_2}$ (harmonic mean).

Step 1 — Substitute: $\dfrac{2 \times 40 \times 60}{40 + 60} = \dfrac{4800}{100}$.

Step 2 — Compute: $= 48$ km/h.

Why other options are wrong:

- (A) 50 km/h is the simple arithmetic mean, which is wrong for equal distances.
- (D) 45 km/h has no basis.

Final Answer: Average speed $= 48$ km/h $\Rightarrow$ C

Answer: (C) Go Back to Q 41

Q42.

Solution

Concept — Inverse proportion (men and days): men $\times$ days $=$ constant.

Step 1 — Total work: $15 \times 20 = 300$ man-days.

Step 2 — Days for 25 men: $\frac{300}{25} = 12$ days.

Why other options are wrong:

- (A) 15 days ignores the larger workforce.
- (B) 10 days uses the wrong proportion.

Final Answer: 25 men take 12 days $\Rightarrow$ D

Answer: (D) Go Back to Q 42

Q43.

Solution

Concept — Pipe with a leak: Net rate $=$ filling rate $-$ leak rate.

Step 1 — Rates: Fill $= \frac{1}{15}$, leak $= \frac{1}{30}$ per minute.

Step 2 — Net rate: $\frac{1}{15} - \frac{1}{30} = \frac{2}{30} - \frac{1}{30} = \frac{1}{30}$ per minute.

Step 3 — Time: Time $= 30$ minutes.

Why other options are wrong:

- (C) 20 min ignores the leak.
- (D) 45 min over-counts the leak's effect.

Final Answer: Tank fills in 30 minutes $\Rightarrow$ A

Answer: (A) Go Back to Q 43

Q44.

Solution

Concept — Solving simultaneous linear equations: Eliminate one variable to find both.

Step 1 — From $x + y = 7$: $y = 7 - x$.

Step 2 — Substitute: $3x + 2(7 - x) = 18 \Rightarrow 3x + 14 - 2x = 18 \Rightarrow x = 4$.

Step 3 — Find y and $x - y$: $y = 7 - 4 = 3$, so $x - y = 4 - 3 = 1$.

Why other options are wrong:

- (A) -3 reverses the subtraction.
- (C) 3 is the value of y, not $x - y$.

Final Answer: $x - y = 1 \Rightarrow \boxed{\text{B}}$

Answer: (B) Go Back to Q 44

Q45.

Solution

Concept — Factoring a quadratic: Find two numbers that add to $-(\text{coeff of } x)$ pattern and multiply to the constant.

Step 1 — Factor: $x^2 - 5x + 6 = (x - 2)(x - 3)$.

Step 2 — Roots: $x = 2$ and $x = 3$.

Why other options are wrong:

- (B) $-2, -3$ give $x^2 + 5x + 6$.
- (A) 1 and 6 give a product 6 but sum 7, not 5.

Final Answer: Roots are 2 and $3 \Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q 45

Q46.

Solution

Concept — Solving a linear inequality: Dividing by a negative number flips the inequality sign.

Step 1 — Isolate the x-term: $5 - 2x > 1 \Rightarrow -2x > 1 - 5 \Rightarrow -2x > -4$.

Step 2 — Divide by -2 (flip): $x < 2$.

Why other options are wrong:

- (A) $x > 2$ forgets to flip the sign.
- (C) $x < 3$ uses a wrong constant.

Final Answer: $x < 2 \Rightarrow$ D

Answer: (D) Go Back to Q 46

Q47.

Solution

Concept — Sum of an infinite GP: For $|r| < 1$, $S = \dfrac{a}{1-r}$.

Step 1 — Identify: $a = 1$, $r = \dfrac{1}{3}$.

Step 2 — Apply: $S = \dfrac{1}{1 - \frac{1}{3}} = \dfrac{1}{\frac{2}{3}} = \dfrac{3}{2}$.

Why other options are wrong:

- (B) 2 would need $r = \frac{1}{2}$.
- (D) 3 would need $r = \frac{2}{3}$.

Final Answer: Sum $= \dfrac{3}{2} \Rightarrow$ A

Answer: (A) Go Back to Q 47

Q48.

Solution

Concept — Permutations of distinct digits: Fill the places one at a time without repetition.

Step 1 — Choices per place: Hundreds $= 5$, tens $= 4$, units $= 3$.

Step 2 — Multiply: $5 \times 4 \times 3 = 60$.

Why other options are wrong:

- (A) $125 = 5^3$ allows repetition.
- (C) $120 = 5!$ uses all five places.

Final Answer: 60 three-digit numbers $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q 48

Q49.

Solution

Concept — Binomial coefficient: $\binom{n}{r} = \dfrac{n!}{r!(n-r)!}$.

Step 1 — Substitute: $\binom{8}{2} = \dfrac{8 \times 7}{2 \times 1}$.

Step 2 — Compute: $= \dfrac{56}{2} = 28$.

Why other options are wrong:

- (B) $56 = 8 \times 7$ skips dividing by $2!$.
- (A) 16 has no basis.

Final Answer: $\binom{8}{2} = 28 \Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q 49

Q50.

Solution

Concept — Probability with a deck of cards: Favourable face cards over 52.

Step 1 — Count face cards: 3 face cards (K, Q, J) per suit $\times 4$ suits $= 12$.

Step 2 — Probability: $\dfrac{12}{52} = \dfrac{3}{13}$.

Why other options are wrong:

- (A) $\frac{1}{13}$ counts only one rank (e.g. only Kings).
- (B) $\frac{1}{4}$ would be 13 favourable cards.

Final Answer: Probability $= \dfrac{3}{13} \Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q 50

Q51.

Solution

Concept — Angle sum of a quadrilateral: The four interior angles add to $360°$.

Step 1 — Sum the known angles: $80 + 100 + 95 = 275°$.

Step 2 — Find $\angle D$: $360 - 275 = 85°$.

Why other options are wrong:

- (B) $90°$ would make the sum $365°$.
- (C) $80°$ would make the sum $355°$.

Final Answer: $\angle D = 85° \Rightarrow \boxed{\text{A}}$

Answer: (A) Go Back to Q 51

Q52.

Solution

Concept — Co-interior (allied) angles: Between parallel lines, co-interior angles are supplementary (sum $180°$).

Step 1 — Apply the property: Other angle $= 180° - 110°$.

Step 2 — Compute: $= 70°$.

Why other options are wrong:

- (A) 110° would hold for corresponding/alternate angles, not co-interior.
- (C) 90° has no basis here.

Final Answer: Other co-interior angle $= 70^\circ \Rightarrow$ B

Answer: (B) Go Back to Q 52

Q53.

Solution

Concept — Cube surface area and volume: TSA $= 6a^2$ and volume $= a^3$.

Step 1 — Find the edge: $6a^2 = 96 \Rightarrow a^2 = 16 \Rightarrow a = 4$ cm.

Step 2 — Volume: $a^3 = 4^3 = 64$ cm^3.

Why other options are wrong:

- (A) 36 uses $a =?$ inconsistent with $6a^2 = 96$.
- (D) 96 confuses the surface area with the volume.

Final Answer: Volume $= 64$ cm$^3 \Rightarrow$ C

Answer: (C) Go Back to Q 53

Q54.

Solution

Concept — Rectangle perimeter and area: Perimeter $= 2(l + b)$; area $= l \times b$.

Step 1 — Find breadth: $2(14 + b) = 48 \Rightarrow 14 + b = 24 \Rightarrow b = 10$ cm.

Step 2 — Area: $14 \times 10 = 140$ cm^2.

Why other options are wrong:

- (A) $112 = 14 \times 8$, wrong breadth.
- (C) $168 = 14 \times 12$, wrong breadth.

Final Answer: Area $= 140$ cm$^2 \Rightarrow$ D

Answer: (D) Go Back to Q 54

Q55.

Solution

Concept — Simplifying surds: Reduce each radical to a multiple of $\sqrt{3}$.

Step 1 — Simplify radicals: $\sqrt{75} = 5\sqrt{3}$ and $\sqrt{12} = 2\sqrt{3}$.

Step 2 — Subtract and divide: $\dfrac{5\sqrt{3} - 2\sqrt{3}}{\sqrt{3}} = \dfrac{3\sqrt{3}}{\sqrt{3}} = 3.$

Why other options are wrong:

- (B) 5 uses $\sqrt{75} = 5\sqrt{3}$ alone without subtracting.
- (D) $\sqrt{3}$ forgets to divide out the common $\sqrt{3}$.

Final Answer: Value $= 3 \Rightarrow$ A

Answer: (A) Go Back to Q 55

Q56.

Solution

Concept — Evaluating a function: Substitute the input value carefully, watching signs.

Step 1 — Substitute $x = -1$**:** $f(-1) = 2(-1)^2 - 3(-1) + 1.$

Step 2 — Simplify: $= 2(1) + 3 + 1 = 2 + 3 + 1 = 6.$

Why other options are wrong:

- (A) $0 = f(\frac{1}{2})$ region, not $f(-1)$.
- (C) -4 mishandles the sign of $-3(-1)$.

Final Answer: $f(-1) = 6 \Rightarrow$ B

Answer: (B) Go Back to Q 56

Q57.

Solution

Concept — Reading a pie chart: Each percentage applies to the total budget.

Step 1 — Rent percentage: Rent $= 25\%$ of Rs. $36{,}000$.

Step 2 — Compute: $0.25 \times 36{,}000 = 9{,}000$.

Why other options are wrong:

- (A) $7{,}200$ is 20% (Education).
- (B) $10{,}800$ is 30% (Food).

Final Answer: Rent $=$ Rs. $9{,}000 \Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q 57

Q58.

Solution

Concept — Difference of two sectors: Convert both percentages to rupees and subtract.

Step 1 — Amounts: Food $= 30\%$ of $36{,}000 = 10{,}800$; Education $= 20\%$ of $36{,}000 = 7{,}200$.

Step 2 — Difference: $10{,}800 - 7{,}200 = 3{,}600$.

Why other options are wrong:

- (A) $5{,}400$ is the Savings amount.
- (C) $4{,}800$ has no basis.

Final Answer: Difference $=$ Rs. $3{,}600 \Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q 58

Q59.

Solution

Concept — Sector angle from percentage: Central angle $=$ percentage $\times\ 360°$.

Step 1 — Savings share: Savings $= 15\%$.

Step 2 — Angle: $0.15 \times 360° = 54°$.

Why other options are wrong:

- (D) $36°$ corresponds to 10% (Others).
- (C) $60°$ would be one-sixth, i.e. about 16.7%.

Final Answer: Savings sector $= 54° \Rightarrow$ A

Answer: (A) Go Back to Q 59

Q60.

Solution

Concept — Data sufficiency on parity: Decide whether each statement alone fixes the parity of n.

Step 1 — Statement I: n^2 even $\Rightarrow$ n even (an odd number squared is odd). So n is even — sufficient alone.

Step 2 — Statement II: $n + 1$ odd $\Rightarrow$ n even. Sufficient alone as well.

Step 3 — Conclusion: Each statement alone is sufficient.

Why other options are wrong:

- (A) Statement II alone is also sufficient, so this is too narrow.
- (D) Neither needs the other; each works alone.

Final Answer: Each alone is sufficient $\Rightarrow$ B

Answer: (B) Go Back to Q 60

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	C	3	A	4	D	5	B
6	C	7	A	8	D	9	B	10	C
11	A	12	B	13	D	14	C	15	A
16	B	17	D	18	C	19	A	20	B
21	D	22	C	23	A	24	B	25	D
26	C	27	A	28	B	29	D	30	B
31	A	32	B	33	C	34	D	35	A
36	B	37	C	38	D	39	A	40	B
41	C	42	D	43	A	44	B	45	C
46	D	47	A	48	B	49	C	50	D
51	A	52	B	53	C	54	D	55	A
56	B	57	C	58	D	59	A	60	B