

ATMA Quantitative Skills Sample Paper – 5

Duration: 60 Minutes

Maximum Marks: 60

Instructions

- This paper contains **60** Multiple Choice Questions (Single Correct Answer) arranged in **two parts (Part I: Q1–Q30, Part II: Q31–Q60)**, modelled on the Quantitative Skills portion of **ATMA** (AIMS Test for Management Admissions).
- Each correct answer carries **+1 marks**. There is a **penalty of 0.25 mark** for each incorrect answer, while unattempted questions earn **0**.
- 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 (Q1–Q30)

- Q1.** The number $N = 2^4 \times 3^2 \times 5^2$ has how many positive divisors that are perfect squares?
- (A) 9
(B) 18
(C) 12
(D) 6
- Q2.** When a positive integer n is divided by 7 the remainder is 4, and when divided by 5 the remainder is 2. What is the smallest such positive integer n ?



- (A) 11
- (B) 32
- (C) 25
- (D) 39

Q3. The price of a commodity is increased by 25% and then decreased by 20%. The net percentage change in the price is

- (A) 0% (no change)
- (B) 5% increase
- (C) 5% decrease
- (D) 4% increase

Q4. In an examination 40% of students failed in Mathematics and 30% failed in English. If 12% failed in both subjects, what percentage of students passed in both subjects?

- (A) 30%
- (B) 58%
- (C) 48%
- (D) 42%

Q5. Three partners A, B and C invest in a business in the ratio 4 : 5 : 6. At the year end the total profit is Rs. 45,000. B's share of the profit (in Rupees) is

- (A) Rs. 12,000
- (B) Rs. 15,000
- (C) Rs. 18,000
- (D) Rs. 20,000

Q6. The average age of a group of 10 people is 32 years. When one person leaves the group, the average age of the remaining 9 becomes 30 years. The age (in years) of the person who left is



- (A) 40
- (B) 48
- (C) 50
- (D) 52

Q7. A shopkeeper marks an article 40% above its cost price and then allows a discount of 25% on the marked price. His profit or loss percentage is

- (A) 5% profit
- (B) 5% loss
- (C) 10% profit
- (D) No profit, no loss

Q8. By selling an article for Rs. 720 a trader gains 20%. To gain 35%, he should sell the same article for

- (A) Rs. 780
- (B) Rs. 810
- (C) Rs. 864
- (D) Rs. 840

Q9. A sum of Rs. 8000 is invested at 10% per annum compound interest, compounded annually. The compound interest earned at the end of 2 years is

- (A) Rs. 1600
- (B) Rs. 1720
- (C) Rs. 1640
- (D) Rs. 1680

Q10. A train 150 m long, running at 54 km/h, crosses a platform in 20 seconds. The length of the platform (in metres) is



- (A) 120
- (B) 150
- (C) 180
- (D) 200

Q11. A boat goes 24 km downstream in 3 hours and the same distance upstream in 4 hours. The speed of the stream (in km/h) is

- (A) 0.5
- (B) 0.75
- (C) 1
- (D) 1.5

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

- (A) 7.2
- (B) 7.5
- (C) 8
- (D) 6.5

Q13. A pipe can fill a tank in 6 hours and another pipe can empty the full tank in 9 hours. If both pipes are opened together when the tank is empty, the time taken to fill the tank is

- (A) 15 hours
- (B) 16 hours
- (C) 18 hours
- (D) 12 hours

Q14. The cost of 3 pens and 4 pencils is Rs. 58, while the cost of 5 pens and 2 pencils is Rs. 64. The cost of one pen (in Rupees) is



- (A) 8
- (B) 10
- (C) 12
- (D) 7

Q15. If α and β are the roots of the equation $x^2 - 7x + 10 = 0$, then the value of $\frac{1}{\alpha} + \frac{1}{\beta}$ is

- (A) $\frac{7}{10}$
- (B) $\frac{10}{7}$
- (C) $\frac{1}{10}$
- (D) $\frac{17}{10}$

Q16. The number of integer values of x that satisfy the inequality $-5 \leq 2x - 3 < 7$ is

- (A) 4
- (B) 7
- (C) 6
- (D) 5

Q17. The sum of the first 20 terms of an arithmetic progression whose first term is 5 and common difference is 3 is

- (A) 640
- (B) 670
- (C) 700
- (D) 610

Q18. In how many ways can the letters of the word "BANANA" be arranged?

- (A) 720



- (B) 120
- (C) 60
- (D) 360

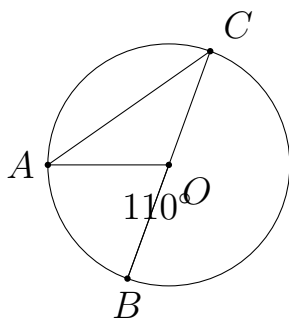
Q19. A committee of 3 members is to be formed from a group of 5 men and 4 women. The number of committees that contain exactly 2 men and 1 woman is

- (A) 40
- (B) 30
- (C) 60
- (D) 20

Q20. Two fair dice are thrown together. The probability that the sum of the numbers shown is 8 is

- (A) $\frac{1}{6}$
- (B) $\frac{5}{36}$
- (C) $\frac{1}{9}$
- (D) $\frac{7}{36}$

Q21. In the figure, O is the centre of the circle and $\angle AOB = 110^\circ$. The inscribed angle $\angle ACB$ subtended by the same arc AB at the circumference is

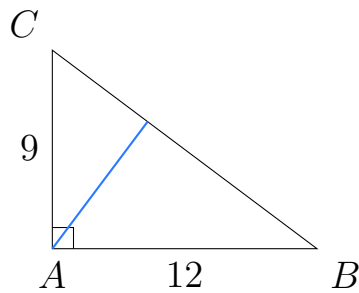


- (A) 110°



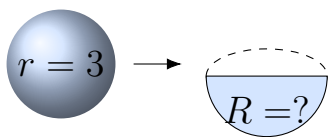
- (B) 70°
 (C) 35°
 (D) 55°

Q22. In a right-angled triangle the two legs measure 9 cm and 12 cm. The length of the altitude drawn from the right angle to the hypotenuse (in cm) is



- (A) 7.2
 (B) 6
 (C) 5.4
 (D) 8

Q23. A solid metallic sphere of radius 3 cm is melted and recast into a solid hemisphere. The radius of the hemisphere (in cm) is



- (A) 6
 (B) $3\sqrt[3]{2}$
 (C) $3\sqrt{2}$
 (D) $3\sqrt[3]{4}$

Q24. The total surface area of a solid hemisphere of radius 7 cm is (take $\pi = \frac{22}{7}$)

- (A) 308 cm^2



- (B) 616 cm^2
- (C) 462 cm^2
- (D) 154 cm^2

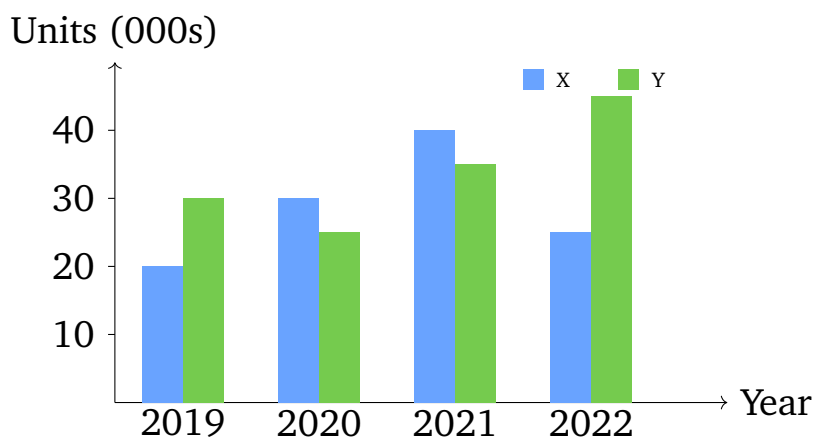
Q25. If $\log_2 x + \log_2(x - 2) = 3$, then the value of x is

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

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

- (A) 10
- (B) 15
- (C) 20
- (D) 5

Q27. Directions (Q27–Q29): The grouped bar graph shows the number of units (in thousands) of Product X and Product Y sold by a company over four years.



The total number of units of Product X sold over the four years (in thousands) is



- (A) 100
- (B) 130
- (C) 120
- (D) 115

Q28. (Refer to the bar graph in Q27.) In which year was the combined sale of Product X and Product Y the highest?

- (A) 2019
- (B) 2021
- (C) 2020
- (D) 2022

Q29. (Refer to the bar graph in Q27.) The ratio of the total sales of Product Y to the total sales of Product X over the four years is

- (A) 27 : 23
- (B) 23 : 27
- (C) 4 : 3
- (D) 1 : 1

Q30. Data Sufficiency: What is the value of the two-digit number N ?

Statement I: The sum of the digits of N is 9.

Statement II: N is divisible by 9 and lies between 20 and 30.

Choose the correct option:

- (A) Statement I alone is sufficient, but Statement II alone is not.
- (B) Statement II alone is sufficient, but Statement I alone is not.
- (C) Each statement alone is sufficient.
- (D) Both statements together are still not sufficient.



Part II (Q31–Q60)

- Q31.** The unit digit of 7^{83} is
- (A) 1
 - (B) 3
 - (C) 7
 - (D) 9
- Q32.** The HCF of two numbers is 12 and their LCM is 720. If one of the numbers is 48, the other number is
- (A) 180
 - (B) 144
 - (C) 240
 - (D) 120
- Q33.** If A 's income is 25% more than B 's income, then B 's income is less than A 's income by
- (A) 25%
 - (B) 30%
 - (C) 20%
 - (D) 15%
- Q34.** The population of a town increased by 10% in the first year and by 20% in the second year. If the present population is 13,200, the population two years ago was
- (A) 11,000
 - (B) 10,500
 - (C) 9000
 - (D) 10,000



- Q35.** If $a : b = 2 : 3$ and $b : c = 4 : 5$, then $a : b : c$ equals
- (A) $2 : 3 : 5$
(B) $8 : 12 : 15$
(C) $8 : 12 : 20$
(D) $2 : 6 : 5$
- Q36.** In what ratio must rice costing Rs. 30 per kg be mixed with rice costing Rs. 45 per kg so that the mixture is worth Rs. 35 per kg?
- (A) $2 : 1$
(B) $1 : 2$
(C) $3 : 2$
(D) $1 : 1$
- Q37.** A man sells two articles for Rs. 1200 each. On one he gains 20% and on the other he loses 20%. His overall result on the two transactions is
- (A) No profit, no loss
(B) 4% profit
(C) 4% loss
(D) 2% loss
- Q38.** Two successive discounts of 20% and 10% are equivalent to a single discount of
- (A) 30%
(B) 28%
(C) 25%
(D) 32%
- Q39.** At what rate of simple interest per annum will a sum of money double itself in 8 years?



- (A) 12.5%
- (B) 10%
- (C) 8%
- (D) 15%

Q40. A car covers a certain distance at 60 km/h and returns over the same route at 40 km/h. The average speed for the whole journey (in km/h) is

- (A) 50
- (B) 52
- (C) 45
- (D) 48

Q41. Two trains, 120 m and 80 m long, run in opposite directions on parallel tracks at 40 km/h and 32 km/h respectively. The time (in seconds) they take to cross each other completely is

- (A) 8
- (B) 10
- (C) 12
- (D) 9

Q42. A and B together can do a work in 8 days, while B alone can do it in 24 days. The number of days A alone needs to finish the work is

- (A) 12
- (B) 16
- (C) 10
- (D) 14

Q43. Two pipes A and B can fill a tank in 20 minutes and 30 minutes respectively. If both are opened together, the time (in minutes) to fill the tank is



- (A) 10
- (B) 15
- (C) 12
- (D) 25

Q44. A father is three times as old as his son. After 12 years the father will be twice as old as his son. The present age of the son (in years) is

- (A) 9
- (B) 10
- (C) 14
- (D) 12

Q45. The roots of the equation $2x^2 - 5x - 3 = 0$ are

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

Q46. For how many positive integers x is $3x + 4 < 25$ true?

- (A) 6
- (B) 7
- (C) 5
- (D) 8

Q47. The sum of an infinite geometric series whose first term is 16 and common ratio is $\frac{1}{2}$ is

- (A) 24
- (B) 48
- (C) 32



(D) 30

Q48. The number of ways in which 5 different books can be arranged on a shelf is

(A) 25

(B) 120

(C) 60

(D) 720

Q49. From a standard deck of 52 cards, the number of ways to choose 2 cards that are both kings is

(A) 12

(B) 4

(C) 8

(D) 6

Q50. A bag contains 4 red and 6 blue balls. One ball is drawn at random. The probability that it is red is

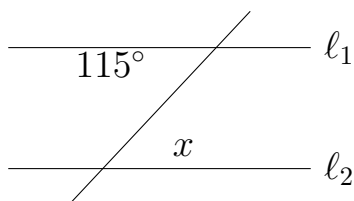
(A) $\frac{2}{5}$

(B) $\frac{3}{5}$

(C) $\frac{1}{2}$

(D) $\frac{4}{6}$

Q51. Two parallel lines are cut by a transversal as shown. If one of the co-interior (allied) angles is 115° , the other co-interior angle is

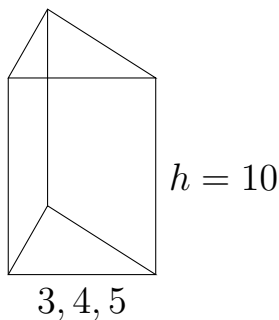


- (A) 115°
- (B) 65°
- (C) 75°
- (D) 90°

Q52. The angles of a triangle are in the ratio 2 : 3 : 4. The largest angle of the triangle is

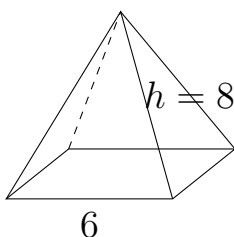
- (A) 60°
- (B) 70°
- (C) 80°
- (D) 90°

Q53. A right prism has a triangular base with sides 3 cm, 4 cm and 5 cm, and a height of 10 cm. Its volume (in cm^3) is



- (A) 60
- (B) 50
- (C) 120
- (D) 30

Q54. A right pyramid stands on a square base of side 6 cm and has a vertical height of 8 cm. Its volume (in cm^3) is



- (A) 144
- (B) 96
- (C) 288
- (D) 48

Q55. The value of $\frac{1}{\sqrt{5} - \sqrt{3}}$ after rationalising the denominator is

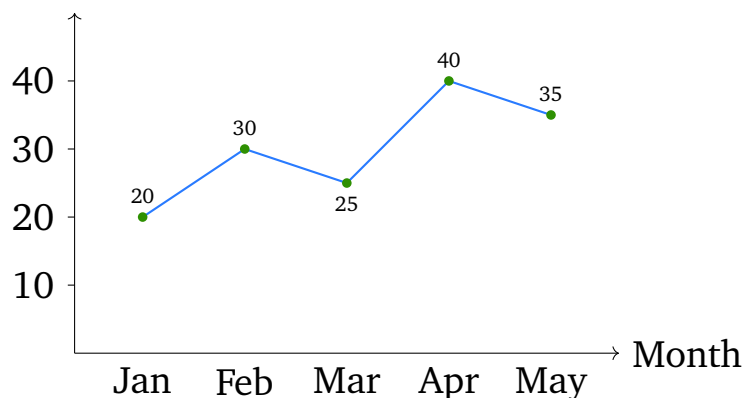
- (A) $\frac{\sqrt{5} - \sqrt{3}}{2}$
- (B) $\sqrt{5} + \sqrt{3}$
- (C) $\frac{\sqrt{5} + \sqrt{3}}{2}$
- (D) $\frac{\sqrt{5} + \sqrt{3}}{8}$

Q56. If $f(x) = 2x + 3$ and $g(x) = x^2$, then the value of $f(g(2))$ is

- (A) 25
- (B) 14
- (C) 49
- (D) 11

Q57. Directions (Q57–Q59): The line graph shows the monthly revenue (in Rs. lakh) of a firm for five months.

Revenue (lakh)



The total revenue over the five months (in Rs. lakh) is



- (A) 140
- (B) 150
- (C) 160
- (D) 145

Q58. (Refer to the line graph in Q57.) The percentage increase in revenue from March to April is

- (A) 60%
- (B) 50%
- (C) 40%
- (D) 37.5%

Q59. (Refer to the line graph in Q57.) The average monthly revenue over the five months (in Rs. lakh) is

- (A) 28
- (B) 32
- (C) 30
- (D) 35

Q60. Data Sufficiency: Is the integer p even?

Statement I: p^2 is even.

Statement II: $3p$ is odd.

Choose the correct option:

- (A) Statement I alone is sufficient, but Statement II alone is not.
- (B) Each statement alone is sufficient.
- (C) Statement II alone is sufficient, but Statement I alone is not.
- (D) Neither statement is sufficient.



Detailed Solutions

Q1.

Solution

Concept — Square divisors: A divisor of N is a perfect square only when every prime in it has an even exponent. For a prime carried to power e in N , the number of even exponents available is $\lfloor e/2 \rfloor + 1$ (the choices $0, 2, 4, \dots$).

Step 1 — Identify the prime powers: Here $N = 2^4 \times 3^2 \times 5^2$.

Step 2 — Count even exponents for each prime:

- For 2^4 : even exponents are $0, 2, 4 \Rightarrow 3$ choices.
- For 3^2 : even exponents are $0, 2 \Rightarrow 2$ choices.
- For 5^2 : even exponents are $0, 2 \Rightarrow 2$ choices.

Step 3 — Multiply the independent choices: Number of square divisors = $3 \times 2 \times 2 = 12$.

Why other options are wrong:

- 9 and 18 count all divisors or mismatched products, not square ones.
- 6 forgets the third even exponent of 2.

Final Answer: 12 perfect-square divisors \Rightarrow

Answer: (C) [Go Back to Q1](#)

Q2.

Solution

Concept — Simultaneous remainders: We need the least n with $n \equiv 4 \pmod{7}$ and $n \equiv 2 \pmod{5}$.

Step 1 — List numbers $\equiv 4 \pmod{7}$: 4, 11, 18, 25, 32, 39, ...

Step 2 — Test the $\pmod{5}$ condition: We need remainder 2 on division by 5.

- $4 \rightarrow$ remainder 4; $11 \rightarrow 1$; $18 \rightarrow 3$; $25 \rightarrow 0$; $32 \rightarrow 2 \checkmark$

Step 3 — Verify $n = 32$: $32 = 7(4) + 4$ and $32 = 5(6) + 2$. Both hold.

Why other options are wrong:

- 11 gives remainder 1 on 5, not 2.



- 25 is divisible by 5 (remainder 0); 39 is larger than 32.

Final Answer: smallest $n = 32 \Rightarrow$

Answer: (B) [Go Back to Q2](#)

Q3.

Solution

Concept — Successive percentage change: Multiply the successive factors and compare with the original.

Step 1 — Apply the increase: A 25% rise multiplies the price by 1.25.

Step 2 — Apply the decrease: A 20% fall multiplies by 0.80.

Step 3 — Combine: Net factor = $1.25 \times 0.80 = 1.00$, i.e. the final price equals the original.

Why other options are wrong:

- A 5% change would require unequal offsetting; here the factors exactly cancel.
- 4% comes from mis-multiplying the percentages directly.

Final Answer: no net change (0%) \Rightarrow

Answer: (A) [Go Back to Q3](#)

Q4.

Solution

Concept — Inclusion-exclusion for failures: Failed in at least one subject = $F(M) + F(E) - F(\text{both})$.

Step 1 — Failed in at least one: $40\% + 30\% - 12\% = 58\%$.

Step 2 — Passed in both: Passed both = $100\% - 58\% = 42\%$.

Why other options are wrong:

- 58% is the failure figure, not the pass figure.
- 30% and 48% drop or double-count the overlap.

Final Answer: 42% passed both \Rightarrow



Answer: (D) [Go Back to Q4](#)

Q5.

Solution

Concept — Profit sharing by ratio: With equal time, profit divides in the investment ratio.

Step 1 — Total ratio parts: $4 + 5 + 6 = 15$ parts.

Step 2 — Value of one part: $\text{Rs. } 45,000 \div 15 = \text{Rs. } 3000$.

Step 3 — B's share: $5 \times 3000 = \text{Rs. } 15,000$.

Why other options are wrong:

- Rs. 12,000 is A's share; Rs. 18,000 is C's share.
- Rs. 20,000 uses an incorrect part value.

Final Answer: B gets Rs. 15,000 \Rightarrow **B**

Answer: (B) [Go Back to Q5](#)

Q6.

Solution

Concept — Change in total from change in average: Use $\text{total} = \text{average} \times \text{count}$.

Step 1 — Total age of 10 people: $10 \times 32 = 320$ years.

Step 2 — Total age of remaining 9: $9 \times 30 = 270$ years.

Step 3 — Age of the person who left: $320 - 270 = 50$ years.

Why other options are wrong:

- 40 and 48 come from using 9 instead of 10 at some stage.
- 52 overstates the difference of totals.

Final Answer: the person was 50 years old \Rightarrow **C**

Answer: (C) [Go Back to Q6](#)



Q7.

Solution

Concept — Markup then discount: Take $CP = 100$; apply markup, then discount on the marked price.

Step 1 — Marked price: 40% above 100 gives $MP = 140$.

Step 2 — Selling price after 25% discount: $SP = 140 \times 0.75 = 105$.

Step 3 — Profit percentage: $SP - CP = 105 - 100 = 5$, so profit = 5%.

Why other options are wrong:

- A loss cannot occur since SP exceeds CP .
- 10% ignores the discount; "no profit" ignores the net gain of 5.

Final Answer: 5% profit \Rightarrow

Answer: (A) [Go Back to Q7](#)

Q8.

Solution

Concept — Cost price from gain, then new selling price: First recover CP , then apply the desired gain.

Step 1 — Find CP : $CP = \frac{720}{1.20} = 600$.

Step 2 — Apply 35% gain: New $SP = 600 \times 1.35 = 810$.

Why other options are wrong:

- Rs. 780 and Rs. 840 use wrong CP or wrong gain.
- Rs. 864 applies 35% to the old SP , not to CP .

Final Answer: sell at Rs. 810 \Rightarrow

Answer: (B) [Go Back to Q8](#)



Q9.

Solution

Concept — Compound interest: $A = P \left(1 + \frac{r}{100}\right)^t$ 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:

- Rs. 1600 is the simple interest figure.
- Rs. 1720 and Rs. 1640 miscompute $(1.1)^2$.

Final Answer: $CI = \text{Rs. } 1680 \Rightarrow \boxed{\text{D}}$

Answer: (D) [Go Back to Q9](#)

Q10.

Solution

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

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

Step 2 — Total distance in 20 s: $15 \times 20 = 300 \text{ m}$.

Step 3 — Platform length: $300 - 150 = 150 \text{ m}$.

Why other options are wrong:

- 120 and 180 misconvert the speed.
- 200 forgets to subtract the train length.

Final Answer: platform = 150 m $\Rightarrow \boxed{\text{B}}$

Answer: (B) [Go Back to Q10](#)



Q11.

Solution

Concept — Boat and stream: Downstream speed = $b + s$, upstream = $b - s$;
stream = $\frac{1}{2}(\text{down} - \text{up})$.

Step 1 — Downstream speed: $\frac{24}{3} = 8$ km/h.

Step 2 — Upstream speed: $\frac{24}{4} = 6$ km/h.

Step 3 — Stream speed: $\frac{8 - 6}{2} = 1$ km/h.

Why other options are wrong:

- 0.5 and 0.75 use wrong subtraction or halving.
- 1.5 gives the wrong difference of the two speeds.

Final Answer: stream = 1 km/h \Rightarrow C

Answer: (C) [Go Back to Q11](#)

Q12.

Solution

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

Step 1 — Individual rates: A does $\frac{1}{12}$ per day, B does $\frac{1}{18}$ per day.

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

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

Why other options are wrong:

- 7.5 and 8 use a wrong common denominator.
- 6.5 overstates the combined rate.

Final Answer: 7.2 days \Rightarrow A

Answer: (A) [Go Back to Q12](#)



Q13.

Solution

Concept — Fill and empty pipes together: Net rate = fill rate – empty rate.

Step 1 — Rates: Filling = $\frac{1}{6}$ per hour, emptying = $\frac{1}{9}$ per hour.

Step 2 — Net rate: $\frac{1}{6} - \frac{1}{9} = \frac{3}{18} - \frac{2}{18} = \frac{1}{18}$ per hour.

Step 3 — Time to fill: $\frac{1}{1/18} = 18$ hours.

Why other options are wrong:

- 15 and 16 use an incorrect net rate.
- 12 ignores part of the emptying effect.

Final Answer: 18 hours \Rightarrow C

Answer: (C) [Go Back to Q13](#)

Q14.

Solution

Concept — Two linear equations: Let pen = p , pencil = q and eliminate q .

Step 1 — Set up: $3p + 4q = 58$ and $5p + 2q = 64$.

Step 2 — Eliminate q : Double the second equation: $10p + 4q = 128$.

Step 3 — Subtract the first: $(10p + 4q) - (3p + 4q) = 128 - 58$, giving $7p = 70$, so $p = 10$.

Why other options are wrong:

- 8 and 7 come from arithmetic slips in elimination.
- 12 solves for the pencil-related combination, not p .

Final Answer: one pen = Rs. 10 \Rightarrow B

Answer: (B) [Go Back to Q14](#)



Q15.

Solution

Concept — Sum and product of roots: For $x^2 - 7x + 10 = 0$, $\alpha + \beta = 7$ and $\alpha\beta = 10$.

Step 1 — Rewrite the target: $\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta}$.

Step 2 — Substitute: $\frac{7}{10}$.

Why other options are wrong:

- $\frac{10}{7}$ inverts numerator and denominator.
- $\frac{1}{10}$ and $\frac{17}{10}$ misuse the relations.

Final Answer: $\frac{7}{10} \Rightarrow \boxed{\text{A}}$

Answer: (A) [Go Back to Q15](#)

Q16.

Solution

Concept — Solving a compound inequality: Isolate x across all three parts.

Step 1 — Add 3 throughout: $-5 + 3 \leq 2x < 7 + 3$, i.e. $-2 \leq 2x < 10$.

Step 2 — Divide by 2: $-1 \leq x < 5$.

Step 3 — Count integers: $x \in \{-1, 0, 1, 2, 3, 4\}$, which is 6 values.



Why other options are wrong:

- 5 forgets one endpoint ($x = -1$ is included).
- 4 and 7 misidentify the integer endpoints.

Final Answer: 6 integer values $\Rightarrow \boxed{\text{C}}$

Answer: (C) [Go Back to Q16](#)



Q17.

Solution

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

Step 1 — Substitute $a = 5$, $d = 3$, $n = 20$: $S_{20} = \frac{20}{2}(2 \times 5 + 19 \times 3)$.

Step 2 — Simplify inside: $2 \times 5 = 10$ and $19 \times 3 = 57$, so the bracket is $10 + 57 = 67$.

Step 3 — Multiply: $10 \times 67 = 670$.

Why other options are wrong:

- 640 and 700 misadd the bracket.
- 610 uses $18d$ instead of $19d$.

Final Answer: $S_{20} = 670 \Rightarrow$ **B**

Answer: (B) [Go Back to Q17](#)

Q18.

Solution

Concept — Permutations with repetition: For a word, arrangements = $\frac{(\text{total letters})!}{\prod(\text{repeats})!}$.

Step 1 — Letter counts in BANANA: 6 letters with $A \times 3$, $N \times 2$, $B \times 1$.

Step 2 — Apply the formula: $\frac{6!}{3!2!} = \frac{720}{6 \times 2} = \frac{720}{12} = 60$.

Why other options are wrong:

- 720 ignores the repeated letters.
- 120 and 360 divide by the wrong factorials.

Final Answer: 60 arrangements \Rightarrow **C**

Answer: (C) [Go Back to Q18](#)



Q19.

Solution

Concept — Selecting a committee: Multiply the independent choices of men and 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: $10 \times 4 = 40$ committees.

Why other options are wrong:

- 30 and 20 use wrong binomial values.
- 60 counts an extra unordered case incorrectly.

Final Answer: 40 committees \Rightarrow **A**

Answer: (A) [Go Back to Q19](#)

Q20.

Solution

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

Step 1 — List sums equal to 8: (2, 6), (3, 5), (4, 4), (5, 3), (6, 2) — that is 5 outcomes.

Step 2 — Probability: $\frac{5}{36}$.

Why other options are wrong:

- $\frac{1}{6} = \frac{6}{36}$ over-counts by one.
- $\frac{1}{9}$ and $\frac{7}{36}$ miscount favourable pairs.

Final Answer: $\frac{5}{36} \Rightarrow$ **B**

Answer: (B) [Go Back to Q20](#)



Q21.

Solution

Concept — Inscribed angle theorem: The angle at the centre is twice any inscribed angle subtending the same arc.

Step 1 — Relation: $\angle AOB = 2 \times \angle ACB$.

Step 2 — Solve: $\angle ACB = \frac{110^\circ}{2} = 55^\circ$.

Why other options are wrong:

- 110° is the central angle, not the inscribed angle.
- 70° and 35° apply a wrong factor.

Final Answer: $\angle ACB = 55^\circ \Rightarrow$ D

Answer: (D) [Go Back to Q21](#)

Q22.

Solution

Concept — Altitude to hypotenuse: In a right triangle with legs a, b and hypotenuse c , the altitude $h = \frac{ab}{c}$.

Step 1 — Hypotenuse: $c = \sqrt{9^2 + 12^2} = \sqrt{81 + 144} = \sqrt{225} = 15$ cm.

Step 2 — Altitude: $h = \frac{9 \times 12}{15} = \frac{108}{15} = 7.2$ cm.

Why other options are wrong:

- 6 and 5.4 use a wrong hypotenuse or product.
- 8 ignores the division by the hypotenuse.

Final Answer: altitude = 7.2 cm \Rightarrow A

Answer: (A) [Go Back to Q22](#)



Q23.

Solution

Concept — Volume conservation in recasting: Melting preserves volume, so sphere volume = hemisphere volume.

Step 1 — Sphere volume: $V_s = \frac{4}{3}\pi(3)^3 = \frac{4}{3}\pi \times 27 = 36\pi$.

Step 2 — Hemisphere volume: $V_h = \frac{2}{3}\pi R^3$.

Step 3 — Equate and solve: $\frac{2}{3}\pi R^3 = 36\pi \Rightarrow R^3 = 54 \Rightarrow R = \sqrt[3]{54} = \sqrt[3]{27 \times 2} = 3\sqrt[3]{2}$.

Why other options are wrong:

- 6 assumes equal-radius shapes, which is false here.
- $3\sqrt{2}$ and $3\sqrt[3]{4}$ take a wrong root.

Final Answer: $R = 3\sqrt[3]{2}$ cm \Rightarrow **B**

Answer: (B) [Go Back to Q23](#)

Q24.

Solution

Concept — Total surface area of a solid hemisphere: TSA = $3\pi r^2$ (curved surface $2\pi r^2$ plus the flat circle πr^2).

Step 1 — Substitute $r = 7$ and $\pi = \frac{22}{7}$: TSA = $3 \times \frac{22}{7} \times 7^2$.

Step 2 — Simplify: = $3 \times \frac{22}{7} \times 49 = 3 \times 22 \times 7 = 462$ cm².

Why other options are wrong:

- 308 is only the curved surface ($2\pi r^2$).
- 616 uses $4\pi r^2$ (a full sphere); 154 is πr^2 alone.

Final Answer: TSA = 462 cm² \Rightarrow **C**

Answer: (C) [Go Back to Q24](#)



Q25.

Solution

Concept — Logarithmic equation: Combine logs, convert to exponential form, then check the domain.

Step 1 — Combine: $\log_2(x(x-2)) = 3$.

Step 2 — Exponential form: $x(x-2) = 2^3 = 8$, so $x^2 - 2x - 8 = 0$.

Step 3 — Factor and solve: $(x-4)(x+2) = 0 \Rightarrow x = 4$ or $x = -2$.

Step 4 — Domain check: Logs need $x > 0$ and $x - 2 > 0$, so $x = 4$ is the only valid root.

Why other options are wrong:

- 2 makes $\log_2(x-2) = \log_2 0$, undefined.
- 8 and 6 do not satisfy $x(x-2) = 8$.

Final Answer: $x = 4 \Rightarrow \boxed{A}$

Answer: (A) [Go Back to Q25](#)

Q26.

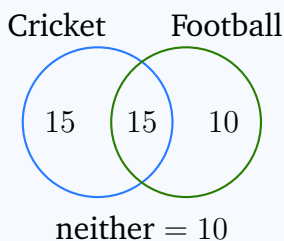
Solution

Concept — Two-set Venn relation: Players of at least one game = total – neither; then use inclusion-exclusion.

Step 1 — At least one game: $50 - 10 = 40$ students.

Step 2 — Inclusion-exclusion: $|C \cup F| = |C| + |F| - |C \cap F|$, so $40 = 30 + 25 - |C \cap F|$.

Step 3 — Solve: $|C \cap F| = 55 - 40 = 15$.



Why other options are wrong:

- 10 forgets to subtract the "neither" group first.
- 20 and 5 misapply inclusion-exclusion.



Final Answer: 15 play both \Rightarrow **B**

Answer: (B) [Go Back to Q26](#)

Q27.

Solution

Concept — Reading a grouped bar graph: Add the X-values across all years.

Step 1 — X values per year: 2019 = 20, 2020 = 30, 2021 = 40, 2022 = 25.

Step 2 — Total: $20 + 30 + 40 + 25 = 115$ thousand units.

Why other options are wrong:

- 100 and 120 misread one of the bars.
- 130 mixes in a Y-value.

Final Answer: 115 thousand units of X \Rightarrow **D**

Answer: (D) [Go Back to Q27](#)

Q28.

Solution

Concept — Combined yearly totals: Add X and Y for each year and compare.

Step 1 — Yearly combined totals:

- 2019 : $20 + 30 = 50$
- 2020 : $30 + 25 = 55$
- 2021 : $40 + 35 = 75$
- 2022 : $25 + 45 = 70$

Step 2 — Largest: The maximum is 75, in 2021.

Why other options are wrong:

- 2022 totals 70, less than 2021.
- 2019 and 2020 are smaller still.

Final Answer: highest combined sale in 2021 \Rightarrow **B**

Answer: (B) [Go Back to Q28](#)



Q29.

Solution

Concept — Ratio of totals: Find each product's grand total, then reduce the ratio.

Step 1 — Total of Y: $30 + 25 + 35 + 45 = 135$.

Step 2 — Total of X: $20 + 30 + 40 + 25 = 115$.

Step 3 — Reduce $135 : 115$: Divide both by 5 to get $27 : 23$.

Why other options are wrong:

- $23 : 27$ reverses the order asked (Y to X).
- $4 : 3$ and $1 : 1$ do not match the totals.

Final Answer: $Y : X = 27 : 23 \Rightarrow$ **A**

Answer: (A) [Go Back to Q29](#)

Q30.

Solution

Concept — Data sufficiency: Test each statement separately for a unique value of N .

Step 1 — Statement I: Digit sum 9 allows 18, 27, 36, 45, ..., 90 — many values. Not sufficient.

Step 2 — Statement II: Multiples of 9 between 20 and 30: only 27. Unique, so sufficient.

Step 3 — Conclusion: Statement II alone fixes $N = 27$; Statement I alone does not.

Why other options are wrong:

- I alone is not sufficient, so (A) and (C) fail.
- Statement II already settles N , so (D) is false.

Final Answer: Statement II alone is sufficient \Rightarrow **B**

Answer: (B) [Go Back to Q30](#)



Q31.

Solution

Concept — Cyclicity of unit digits: Powers of 7 cycle in units as 7, 9, 3, 1 with period 4.

Step 1 — Reduce the exponent mod 4: $83 = 4 \times 20 + 3$, so the remainder is 3.

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

Why other options are wrong:

- 1 corresponds to remainder 0; 7 to remainder 1; 9 to remainder 2.

Final Answer: unit digit = 3 \Rightarrow

[Go Back to Q31](#)

Q32.

Solution

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

Step 1 — Product of numbers: $12 \times 720 = 8640$.

Step 2 — Find the other number: $\frac{8640}{48} = 180$.

Why other options are wrong:

- 144 and 240 divide the product wrongly.
- 120 is not consistent with $\text{HCF} = 12$ alongside 48.

Final Answer: other number = 180 \Rightarrow

[Go Back to Q32](#)



Q33.

Solution

Concept — Asymmetry of percentage comparison: If A is $r\%$ more than B, then B is $\frac{r}{100+r} \times 100\%$ less than A.

Step 1 — Let $B = 100$: Then $A = 125$.

Step 2 — B compared to A: B is less than A by $125 - 100 = 25$ on a base of 125.

Step 3 — Percentage: $\frac{25}{125} \times 100 = 20\%$.

Why other options are wrong:

- 25% wrongly uses B's value as the base.
- 30% and 15% come from incorrect bases.

Final Answer: B is 20% less than A \Rightarrow C

Answer: (C) [Go Back to Q33](#)

Q34.

Solution

Concept — Successive growth: Present = past $\times (1.10) \times (1.20)$.

Step 1 — Combined factor: $1.10 \times 1.20 = 1.32$.

Step 2 — Back out the past population: $\frac{13,200}{1.32} = 10,000$.

Why other options are wrong:

- 11,000 divides by only one factor.
- 10,500 and 9000 use a wrong combined factor.

Final Answer: population two years ago = 10,000 \Rightarrow D

Answer: (D) [Go Back to Q34](#)



Q35.

Solution

Concept — Chaining ratios: Make the common term b equal in both ratios.

Step 1 — Match b : $a : b = 2 : 3 = 8 : 12$ and $b : c = 4 : 5 = 12 : 15$.

Step 2 — Combine: $a : b : c = 8 : 12 : 15$.

Why other options are wrong:

- $2 : 3 : 5$ and $2 : 6 : 5$ do not keep b consistent.
- $8 : 12 : 20$ scales c incorrectly.

Final Answer: $a : b : c = 8 : 12 : 15 \Rightarrow$

[Go Back to Q35](#)

Q36.

Solution

Concept — Rule of alligation: Ratio of cheaper to dearer = $(\text{dearer} - \text{mean}) : (\text{mean} - \text{cheaper})$.

Step 1 — Differences: Dearer – mean = $45 - 35 = 10$; mean – cheaper = $35 - 30 = 5$.

Step 2 — Ratio (cheaper : dearer): $10 : 5 = 2 : 1$.

Why other options are wrong:

- $1 : 2$ reverses the ratio.
- $3 : 2$ and $1 : 1$ misuse the differences.

Final Answer: mix in $2 : 1 \Rightarrow$

[Go Back to Q36](#)



Q37.

Solution

Concept — Equal SP, equal \pm gain/loss: Selling two items at the same price with $+x\%$ and $-x\%$ always yields a net loss of $\frac{x^2}{100}\%$.

Step 1 — Apply the rule: Here $x = 20$, so net loss = $\frac{20^2}{100} = \frac{400}{100} = 4\%$.

Step 2 — Confirm with CPs: $CP_1 = \frac{1200}{1.2} = 1000$, $CP_2 = \frac{1200}{0.8} = 1500$; total CP = 2500, total SP = 2400, loss = 100 on 2500 = 4%.

Why other options are wrong:

- It is always a loss, so "no profit no loss" and "profit" are wrong.
- 2% halves the correct figure.

Final Answer: 4% loss \Rightarrow C

Answer: (C) [Go Back to Q37](#)

Q38.

Solution

Concept — Successive discounts: Net retained fraction is the product of the surviving fractions.

Step 1 — Multiply surviving fractions: $(1 - 0.20)(1 - 0.10) = 0.80 \times 0.90 = 0.72$.

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

Why other options are wrong:

- 30% simply adds the two discounts.
- 25% and 32% miscalculate the product.

Final Answer: single discount = 28% \Rightarrow B

Answer: (B) [Go Back to Q38](#)



Q39.

Solution

Concept — Doubling under simple interest: Money doubles when the interest equals the principal, i.e. $SI = 100\%$ of P .

Step 1 — Use $SI = \frac{P \cdot r \cdot t}{100}$: For doubling, $P = \frac{P \cdot r \cdot 8}{100}$.

Step 2 — Solve for r : $100 = 8r \Rightarrow r = 12.5\%$.

Why other options are wrong:

- 10% doubles in 10 years, not 8.
- 8% and 15% give the wrong doubling time.

Final Answer: rate = 12.5% \Rightarrow

Answer: (A) [Go Back to Q39](#)

Q40.

Solution

Concept — Average speed for equal distances: $avg = \frac{2v_1v_2}{v_1 + v_2}$, the harmonic mean.

Step 1 — Substitute $v_1 = 60$, $v_2 = 40$: $avg = \frac{2 \times 60 \times 40}{60 + 40} = \frac{4800}{100}$.

Step 2 — Simplify: = 48 km/h.

Why other options are wrong:

- 50 is the arithmetic mean, which is wrong for equal distances.
- 52 and 45 misapply the formula.

Final Answer: average speed = 48 km/h \Rightarrow

Answer: (D) [Go Back to Q40](#)



Q41.

Solution

Concept — Trains in opposite directions: Relative speed is the sum; distance is the sum of the two lengths.

Step 1 — Relative speed: $40 + 32 = 72 \text{ km/h} = 72 \times \frac{5}{18} = 20 \text{ m/s}$.

Step 2 — Total length to cover: $120 + 80 = 200 \text{ m}$.

Step 3 — Time: $\frac{200}{20} = 10 \text{ s}$.

Why other options are wrong:

- 8 and 9 use a wrong relative speed.
- 12 adds the speeds incorrectly or uses one length only.

Final Answer: time = 10 s \Rightarrow **B**

Answer: (B) [Go Back to Q41](#)

Q42.

Solution

Concept — Subtracting work rates: A's rate = combined rate – B's rate.

Step 1 — Known rates: Combined = $\frac{1}{8}$ per day, B = $\frac{1}{24}$ per day.

Step 2 — A's rate: $\frac{1}{8} - \frac{1}{24} = \frac{3}{24} - \frac{1}{24} = \frac{2}{24} = \frac{1}{12}$ per day.

Step 3 — A's time: $\frac{1}{1/12} = 12$ days.

Why other options are wrong:

- 16 and 14 use a wrong common denominator.
- 10 overstates A's rate.

Final Answer: A alone needs 12 days \Rightarrow **A**

Answer: (A) [Go Back to Q42](#)



Q43.

Solution

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

Step 1 — Rates: $A = \frac{1}{20}$ per min, $B = \frac{1}{30}$ per min.

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

Step 3 — Time: $\frac{1}{1/12} = 12$ minutes.

Why other options are wrong:

- 10 and 15 use a wrong sum of fractions.
- 25 adds the times instead of the rates.

Final Answer: 12 minutes \Rightarrow C

Answer: (C) [Go Back to Q43](#)

Q44.

Solution

Concept — Age equations: Let the son be S ; form equations for now and after 12 years.

Step 1 — Present: Father = $3S$.

Step 2 — After 12 years: $3S + 12 = 2(S + 12)$.

Step 3 — Solve: $3S + 12 = 2S + 24 \Rightarrow S = 12$.

Why other options are wrong:

- 9 and 10 fail the after-12-years check.
- 14 overshoots the equation.

Final Answer: son's present age = 12 years \Rightarrow D

Answer: (D) [Go Back to Q44](#)



Q45.

Solution

Concept — Factoring a quadratic: Split the middle term of $2x^2 - 5x - 3$.

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

Step 2 — Roots: $2x + 1 = 0 \Rightarrow x = -\frac{1}{2}$; $x - 3 = 0 \Rightarrow x = 3$.

Why other options are wrong:

- Sign errors give -3 or $+\frac{1}{2}$ in the wrong combinations.
- Product of roots is $-\frac{3}{2}$, which only 3 and $-\frac{1}{2}$ satisfy.

Final Answer: roots are 3 and $-\frac{1}{2} \Rightarrow$ **B**

Answer: (B) [Go Back to Q45](#)

Q46.

Solution

Concept — Counting positive integer solutions: Solve the inequality, then count positive integers.

Step 1 — Solve: $3x + 4 < 25 \Rightarrow 3x < 21 \Rightarrow x < 7$.

Step 2 — Positive integers below 7: $x \in \{1, 2, 3, 4, 5, 6\}$, which is 6 values.

Why other options are wrong:

- 7 wrongly includes $x = 7$ (strict inequality excludes it).
- 5 and 8 miscount the range.

Final Answer: 6 positive integers \Rightarrow **A**

Answer: (A) [Go Back to Q46](#)



Q47.

Solution

Concept — Infinite GP sum: For $|r| < 1$, $S_\infty = \frac{a}{1-r}$.

Step 1 — Substitute $a = 16$, $r = \frac{1}{2}$: $S_\infty = \frac{16}{1 - \frac{1}{2}} = \frac{16}{\frac{1}{2}}$.

Step 2 — Simplify: $= 16 \times 2 = 32$.

Why other options are wrong:

- 24 and 30 use a wrong denominator.
- 48 multiplies by 3 instead of 2.

Final Answer: $S_\infty = 32 \Rightarrow$ C

Answer: (C) [Go Back to Q47](#)

Q48.

Solution

Concept — Arranging distinct objects: n distinct items arrange in $n!$ ways.

Step 1 — Apply $n = 5$: $5! = 5 \times 4 \times 3 \times 2 \times 1$.

Step 2 — Compute: $= 120$.

Why other options are wrong:

- 25 is 5^2 , not $5!$.
- 60 and 720 are $\frac{5!}{2}$ and $6!$ respectively.

Final Answer: 120 arrangements \Rightarrow B

Answer: (B) [Go Back to Q48](#)



Q49.

Solution

Concept — Choosing from a fixed group: There are exactly 4 kings; choose 2 of them.

Step 1 — Apply $\binom{4}{2}$: $\frac{4!}{2!2!} = \frac{24}{4} = 6$.

Why other options are wrong:

- 12 counts ordered pairs (4×3).
- 4 and 8 misapply the combination.

Final Answer: 6 ways \Rightarrow

[Go Back to Q49](#)

Q50.

Solution

Concept — Single-draw probability: Favourable over total.

Step 1 — Total balls: $4 + 6 = 10$.

Step 2 — Probability of red: $\frac{4}{10} = \frac{2}{5}$.

Why other options are wrong:

- $\frac{3}{5}$ is the probability of blue.
- $\frac{1}{2}$ and $\frac{4}{6}$ use the wrong total.

Final Answer: $P(\text{red}) = \frac{2}{5} \Rightarrow$

[Go Back to Q50](#)

Q51.

Solution

Concept — Co-interior angles: On parallel lines, co-interior (allied) angles are supplementary, summing to 180° .

Step 1 — Apply the rule: $x + 115^\circ = 180^\circ$.

Step 2 — Solve: $x = 180^\circ - 115^\circ = 65^\circ$.

Why other options are wrong:



- 115° is the given angle, not its supplement.
- 75° and 90° do not satisfy the supplementary relation.

Final Answer: the other angle = $65^\circ \Rightarrow$ **B**

Answer: (B) [Go Back to Q51](#)

Q52.

Solution

Concept — Angle sum split by ratio: The three angles total 180° in the given ratio.

Step 1 — Total parts: $2 + 3 + 4 = 9$ parts.

Step 2 — One part: $\frac{180^\circ}{9} = 20^\circ$.

Step 3 — Largest angle: $4 \times 20^\circ = 80^\circ$.

Why other options are wrong:

- 60° is the middle angle (3 parts).
- 70° and 90° do not correspond to 4 parts.

Final Answer: largest angle = $80^\circ \Rightarrow$ **C**

Answer: (C) [Go Back to Q52](#)

Q53.

Solution

Concept — Volume of a prism: Volume = base area \times height; the 3, 4, 5 base is right-angled.

Step 1 — Base area: Legs 3 and 4 give area = $\frac{1}{2} \times 3 \times 4 = 6 \text{ cm}^2$.

Step 2 — Multiply by height: $6 \times 10 = 60 \text{ cm}^3$.

Why other options are wrong:

- 50 and 30 use a wrong base area.
- 120 forgets the $\frac{1}{2}$ in the triangle area.

Final Answer: volume = $60 \text{ cm}^3 \Rightarrow$ **A**

Answer: (A) [Go Back to Q53](#)



Q54.

Solution

Concept — Volume of a pyramid: $\text{Volume} = \frac{1}{3} \times \text{base area} \times \text{height}$.

Step 1 — Base area: Square of side 6: $6^2 = 36 \text{ cm}^2$.

Step 2 — Apply the formula: $\frac{1}{3} \times 36 \times 8 = \frac{288}{3} = 96 \text{ cm}^3$.

Why other options are wrong:

- 288 forgets the factor $\frac{1}{3}$.
- 144 and 48 use a wrong base area or height.

Final Answer: volume = $96 \text{ cm}^3 \Rightarrow$ **B**

Answer: (B) [Go Back to Q54](#)

Q55.

Solution

Concept — Rationalising a surd denominator: Multiply by the conjugate $\sqrt{5} + \sqrt{3}$.

Step 1 — Multiply: $\frac{1}{\sqrt{5} - \sqrt{3}} \times \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} + \sqrt{3}} = \frac{\sqrt{5} + \sqrt{3}}{(\sqrt{5})^2 - (\sqrt{3})^2}$.

Step 2 — Simplify the denominator: $5 - 3 = 2$, giving $\frac{\sqrt{5} + \sqrt{3}}{2}$.

Why other options are wrong:

- $\sqrt{5} + \sqrt{3}$ drops the denominator 2.
- $\frac{\sqrt{5} - \sqrt{3}}{2}$ uses the wrong conjugate sign; $\frac{\sqrt{5} + \sqrt{3}}{8}$ squares the denominator wrongly.

Final Answer: $\frac{\sqrt{5} + \sqrt{3}}{2} \Rightarrow$ **C**

Answer: (C) [Go Back to Q55](#)



Q56.

Solution

Concept — Composition of functions: Evaluate the inner function first, then the outer.

Step 1 — Inner value: $g(2) = 2^2 = 4$.

Step 2 — Outer value: $f(4) = 2(4) + 3 = 8 + 3 = 11$.

Why other options are wrong:

- 25 computes $g(f(2))$ instead.
- 14 and 49 misorder or mis-evaluate the composition.

Final Answer: $f(g(2)) = 11 \Rightarrow \boxed{D}$

Answer: (D) [Go Back to Q56](#)

Q57.

Solution

Concept — Reading a line graph: Add the five monthly revenue values.

Step 1 — Monthly values: Jan 20, Feb 30, Mar 25, Apr 40, May 35.

Step 2 — Total: $20 + 30 + 25 + 40 + 35 = 150$ lakh.

Why other options are wrong:

- 140 and 160 misread one month.
- 145 drops part of a value.

Final Answer: total revenue = Rs. 150 lakh $\Rightarrow \boxed{B}$

Answer: (B) [Go Back to Q57](#)



Q58.

Solution

Concept — Percentage increase: $\frac{\text{new} - \text{old}}{\text{old}} \times 100$.

Step 1 — Values: March = 25, April = 40.

Step 2 — Compute: $\frac{40 - 25}{25} \times 100 = \frac{15}{25} \times 100 = 60\%$.

Why other options are wrong:

- 37.5% wrongly uses April as the base.
- 50% and 40% misread the change.

Final Answer: increase = 60% \Rightarrow **A**

Answer: (A) [Go Back to Q58](#)

Q59.

Solution

Concept — Average from a total: Average = total \div count.

Step 1 — Total (from Q57): 150 lakh over 5 months.

Step 2 — Average: $\frac{150}{5} = 30$ lakh per month.

Why other options are wrong:

- 28 and 32 use a wrong total.
- 35 divides by 4 instead of 5.

Final Answer: average = Rs. 30 lakh \Rightarrow **C**

Answer: (C) [Go Back to Q59](#)

Q60.

Solution

Concept — Data sufficiency on parity: Each statement must give a definite yes/no for " p even".

Step 1 — Statement I: If p^2 is even then p is even (an odd number squared is odd). So I gives a definite "yes" — sufficient.



Step 2 — Statement II: $3p$ odd forces p odd (odd \times odd = odd). So p is not even — a definite "no", hence sufficient.

Step 3 — Conclusion: Each statement alone settles the question.

Why other options are wrong:

- Since both work alone, "only I", "only II" and "neither" are all wrong.

Final Answer: each statement alone is sufficient \Rightarrow **B**

Answer: (B) [Go Back to Q60](#)



Answer Key

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

