

NMAT Quantitative Skills

Sample Paper – 9

Duration: 52 Minutes

Maximum Marks: 108

Instructions

- This paper contains **36** Multiple Choice Questions (Single Correct Answer), modelled on the Quantitative Skills section of **NMAT** by GMAC.
- Each correct answer carries **+3 marks**. There is **no negative marking** for incorrect or unattempted answers, so attempt every question.
- Only **one** option is correct. Choose the most appropriate answer.
- NMAT is a computer-based test with sectional time limits; attempt this practice paper in one timed sitting of about **52 minutes**.
- Use of mobile phones, dictionaries or electronic gadgets is prohibited; a basic on-screen calculator is allowed in NMAT, but practise mental methods.

Part A: Arithmetic

- Q1.** In a class, 35% of the students are girls and the rest are boys. If there are 78 boys, how many students are there in the class in all?
- (A) 120
(B) 130
(C) 140
(D) 150
- Q2.** A trader buys a bicycle for Rs. 2400 and sells it at a loss of 12%. Find the selling price of the bicycle.
- (A) Rs. 2100
(B) Rs. 2000



(C) Rs. 2688

(D) Rs. 2112

Q3. An amount of Rs. 5600 is divided between X and Y in the ratio 5 : 3. Find X's share.

(A) Rs. 3500

(B) Rs. 2100

(C) Rs. 2800

(D) Rs. 3200

Q4. The average of 6 numbers is 42. When a seventh number is included, the average of all seven numbers becomes 40. Find the seventh number.

(A) 28

(B) 30

(C) 26

(D) 38

Q5. A train covers a distance of 360 km in 5 hours. Travelling at the same uniform speed, what distance will it cover in 8 hours?

(A) 540 km

(B) 576 km

(C) 600 km

(D) 480 km

Q6. P can complete a piece of work in 12 days and Q can complete the same work in 24 days. Working together, in how many days will they finish the work?

(A) 6

(B) 18

(C) 36



(D) 8

Q7. Find the simple interest on Rs. 6000 at the rate of 9% per annum for 4 years.

(A) Rs. 1620

(B) Rs. 1080

(C) Rs. 2400

(D) Rs. 2160

Q8. Find the compound interest on Rs. 12000 at 5% per annum, compounded annually, for 2 years.

(A) Rs. 1200

(B) Rs. 1260

(C) Rs. 1230

(D) Rs. 1250

Q9. In what ratio must tea costing Rs. 60 per kg be mixed with tea costing Rs. 90 per kg so that the mixture is worth Rs. 70 per kg?

(A) 1 : 2

(B) 3 : 2

(C) 2 : 1

(D) 1 : 1

Q10. A invests Rs. 9000 and B invests Rs. 12000 in a business for the same period. If the total annual profit is Rs. 3500, find A's share of the profit.

(A) Rs. 2000

(B) Rs. 1500

(C) Rs. 1750

(D) Rs. 1200



Part B: Algebra and Number System

Q11. Solve for x : $5x - 8 = 27$.

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

Q12. The equation $x^2 - 9x + 20 = 0$ has two real roots. What is the smaller of the two roots?

- (A) 3
- (B) 4
- (C) 5
- (D) 6

Q13. Simplify: $\frac{3^5}{3^2}$.

- (A) 9
- (B) 81
- (C) 243
- (D) 27

Q14. Find the highest common factor (HCF) of 24 and 36.

- (A) 6
- (B) 72
- (C) 4
- (D) 12

Q15. Find the 8th term of the arithmetic progression 5, 9, 13, ...

- (A) 29



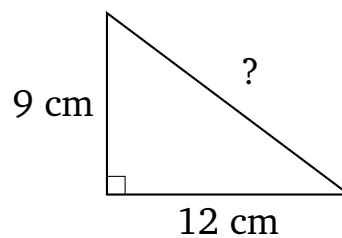
- (B) 33
- (C) 37
- (D) 41

Q16. Simplify using the order of operations: $20 - 4 \times 3 + 18 \div 6$.

- (A) 7
- (B) 9
- (C) 11
- (D) 13

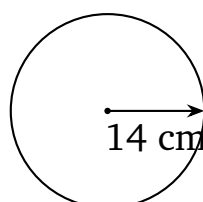
Part C: Geometry and Mensuration

Q17. In the right-angled triangle shown, the two legs measure 9 cm and 12 cm. Find the length of the hypotenuse.



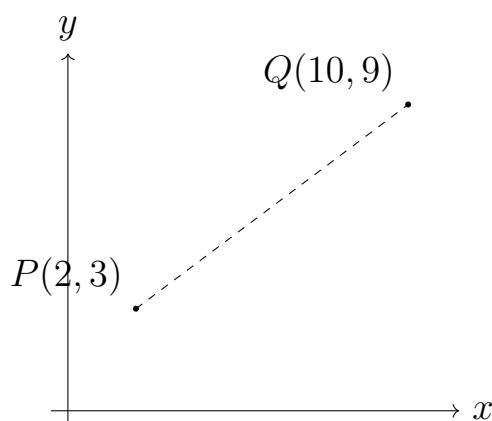
- (A) 18 cm
- (B) 21 cm
- (C) 15 cm
- (D) 13 cm

Q18. The circle shown has radius 14 cm. Find its area. (Take $\pi = \frac{22}{7}$.)



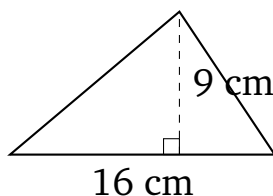
- (A) 88 cm^2
- (B) 154 cm^2
- (C) 44 cm^2
- (D) 616 cm^2

Q19. Find the distance between the points $P(2, 3)$ and $Q(10, 9)$ shown on the coordinate plane.



- (A) 6
- (B) 8
- (C) 10
- (D) 14

Q20. The triangle shown has base 16 cm and height 9 cm. Find its area.

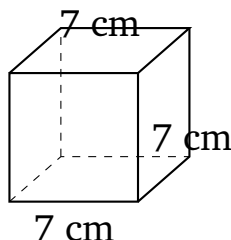


- (A) 144 cm^2
- (B) 25 cm^2
- (C) 72 cm^2



(D) 50 cm^2

Q21. The cube shown has each edge equal to 7 cm. Find its volume.



(A) 343 cm^3

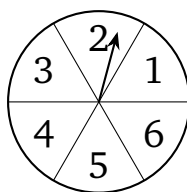
(B) 294 cm^3

(C) 49 cm^3

(D) 147 cm^3

Part D: Modern Maths

Q22. A fair spinner is divided into 6 equal sectors numbered 1 to 6, as shown. If the spinner is spun once, what is the probability that the arrow stops on a number greater than 4?



(A) $\frac{1}{3}$

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

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

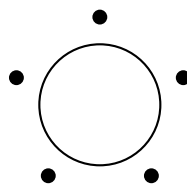
(D) $\frac{1}{6}$

Q23. In how many ways can a team of 3 members be chosen from a group of 7 players?



- (A) 21
- (B) 210
- (C) 42
- (D) 35

Q24. In how many ways can 5 people be seated around a circular table, as shown? (Two arrangements are the same if one is a rotation of the other.)



- (A) 120
- (B) 24
- (C) 5
- (D) 12

Part E: Data Interpretation

Data Set I (Q25–Q28): The table below shows the number of tourists (in thousands) who visited four states – Kerala, Goa, Rajasthan and Assam – in the years 2021, 2022 and 2023.

State	2021	2022	2023
Kerala	120	150	180
Goa	200	240	210
Rajasthan	160	180	250
Assam	90	110	130

Q25. What is the total number of tourists (in thousands) who visited all four states together in the year 2023?

- (A) 690



- (B) 710
- (C) 750
- (D) 770

Q26. Which state recorded the largest increase in the number of tourists from 2021 to 2023?

- (A) Kerala
- (B) Goa
- (C) Rajasthan
- (D) Assam

Q27. What is the percentage increase in the number of tourists visiting Kerala from 2021 to 2023?

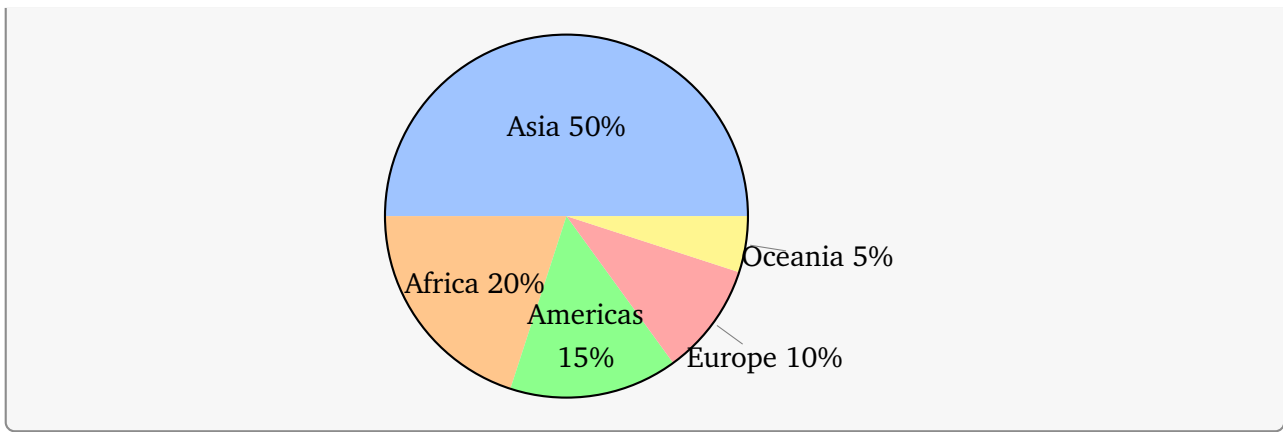
- (A) 50%
- (B) 40%
- (C) 60%
- (D) 33.3%

Q28. What is the ratio of Assam's tourists in 2021 to Goa's tourists in 2023?

- (A) 7 : 3
- (B) 9 : 20
- (C) 2 : 5
- (D) 3 : 7

Data Set II (Q29–Q32): The pie chart below shows how the total world population of 8000 million is split across five continents.





- Q29.** If the total world population is 8000 million, what is the population of Africa (in millions)?
- (A) 1200
(B) 1600
(C) 800
(D) 2000
- Q30.** The population of Asia is how many times the population of Europe?
- (A) 4
(B) 5
(C) 2
(D) 10
- Q31.** What is the central angle (in degrees) of the sector representing the Americas?
- (A) 36
(B) 45
(C) 54
(D) 60
- Q32.** What is the combined population (in millions) of Europe and Oceania together?



- (A) 1000
- (B) 1200
- (C) 1400
- (D) 800

Part F: Data Sufficiency

Directions (Q33–Q36): Each question below is followed by two statements, I and II. Decide whether the information in the statements is sufficient to answer the question and choose from the standard options given with each question.

Q33. What is the value of y ?

- I. $3y = 21$.
- II. y is a prime number less than 10.

- (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) Both statements together are sufficient, but neither alone is.
- (D) Each statement alone is sufficient.

Q34. What is the two-digit number?

- I. The sum of its two digits is 9.
- II. The tens digit is twice the units digit.

- (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) Both statements together are sufficient, but neither alone is.
- (D) Each statement alone is sufficient.

Q35. Is the number x greater than 10?

- I. $x = 15$.
- II. x is a positive even number.

- (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) Both statements together are sufficient, but neither alone is.
- (D) Each statement alone is sufficient.

Q36. What is the area of a rectangle?

- I. The perimeter of the rectangle is 26 cm.
 - II. The length of the rectangle is 8 cm and its breadth is 5 cm.
- (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) Both statements together are sufficient, but neither alone is.
 - (D) Each statement alone is sufficient.



Detailed Solutions

Q1.

Solution

Concept — Percentage: Girls and boys together make up 100% of the class, so the boys' percentage is 100% minus the girls' percentage.

Step 1: Girls = 35% of the class.

Step 2: So boys = $100\% - 35\% = 65\%$ of the class.

Step 3: The 65% who are boys equal 78 students.

Step 4: So $\frac{65}{100} \times \text{Total} = 78$.

Step 5: Total = $78 \times \frac{100}{65}$.

Step 6: Total = $\frac{7800}{65} = 120$.

Why other options are wrong:

- Option B (130): would make 65% of it = 84.5, not 78.
- Option C (140): 65% of it = 91, not 78.
- Option D (150): 65% of it = 97.5, not 78.

Final Answer: 120 students $\Rightarrow$ A

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

Q2.

Solution

Concept — Profit and Loss: On a loss, Selling price = Cost price – Loss, where Loss = Loss% of Cost price.

Step 1: Cost price = Rs. 2400, Loss = 12%.

Step 2: Loss = $\frac{12}{100} \times 2400$.

Step 3: Loss = $12 \times 24 = 288$.

Step 4: Selling price = $2400 - 288 = 2112$.

Why other options are wrong:

- Option A (2100): uses a rounded, wrong loss amount.



- Option B (2000): uses a loss of Rs. 400, not Rs. 288.
- Option C (2688): adds the change, giving a 12% profit instead of a loss.

Final Answer: Rs. 2112 $\Rightarrow$ D

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

Q3.

Solution

Concept — Ratio and Proportion: A share equals its ratio part divided by the sum of parts, times the total amount.

Step 1: Ratio $X : Y = 5 : 3$, so total parts $= 5 + 3 = 8$.

Step 2: X's part = 5 out of 8.

Step 3: X's share $= \frac{5}{8} \times 5600$.

Step 4: $\frac{5600}{8} = 700$.

Step 5: X's share $= 5 \times 700 = 3500$.

Why other options are wrong:

- Option B (2100): this is Y's share, not X's.
- Option C (2800): this is an equal half-split, ignoring the ratio.
- Option D (3200): uses a wrong ratio part.

Final Answer: Rs. 3500 $\Rightarrow$ A

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

Q4.

Solution

Concept — Averages: Sum = Average $\times$ Count. Find both sums, then subtract to get the new value.

Step 1: Sum of the 6 numbers $= 42 \times 6 = 252$.

Step 2: After including the seventh number, count = 7 and average = 40.

Step 3: Sum of all 7 numbers $= 40 \times 7 = 280$.

Step 4: Seventh number $= 280 - 252$.



Step 5: Seventh number = 28.

Why other options are wrong:

- Option B (30): uses a wrong new sum.
- Option C (26): arithmetic slip in the subtraction.
- Option D (38): close to the old average, but not the correct value.

Final Answer: 28 $\Rightarrow$ A

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

Q5.

Solution

Concept — Speed, Time and Distance: First find the speed from the given trip, then Distance = Speed $\times$ Time for the new time.

Step 1: Speed = $\frac{360}{5}$.

Step 2: Speed = 72 km/h.

Step 3: New distance = 72×8 .

Step 4: New distance = 576 km.

Why other options are wrong:

- Option A (540): uses a speed of 67.5 km/h, which is wrong.
- Option C (600): uses a speed of 75 km/h, which is wrong.
- Option D (480): uses only about 6.7 hours or a wrong speed.

Final Answer: 576 km $\Rightarrow$ B

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

Q6.

Solution

Concept — Time and Work: Add the one-day work of each worker to get the combined one-day work, then take the reciprocal.

Step 1: P's one-day work = $\frac{1}{12}$.



Step 2: Q's one-day work = $\frac{1}{24}$.

Step 3: Combined one-day work = $\frac{1}{12} + \frac{1}{24}$.

Step 4: Take LCM of 12 and 24, which is 24: $\frac{2}{24} + \frac{1}{24} = \frac{3}{24}$.

Step 5: $\frac{3}{24} = \frac{1}{8}$.

Step 6: Time together = $\frac{1}{1/8} = 8$ days.

Why other options are wrong:

- Option A (6): does not match the combined rate.
- Option B (18): this is the average of 12 and 24, not the work rule.
- Option C (36): sums the days, which is incorrect.

Final Answer: 8 days $\Rightarrow$ D

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

Q7.

Solution

Concept — Simple Interest: $SI = \frac{P \times R \times T}{100}$.

Step 1: $P = 6000, R = 9, T = 4$.

Step 2: $SI = \frac{6000 \times 9 \times 4}{100}$.

Step 3: $6000 \times 9 = 54000$.

Step 4: $54000 \times 4 = 216000$.

Step 5: $SI = \frac{216000}{100} = 2160$.

Why other options are wrong:

- Option A (1620): uses 3 years instead of 4.
- Option B (1080): uses 2 years instead of 4.
- Option C (2400): uses 10% instead of 9%.

Final Answer: Rs. 2160 $\Rightarrow$ D

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



Q8.

Solution

Concept — Compound Interest: $\text{Amount} = P \left(1 + \frac{R}{100}\right)^T$, and $\text{CI} = \text{Amount} - P$.

Step 1: $P = 12000, R = 5, T = 2$.

Step 2: Growth factor per year $= 1 + \frac{5}{100} = 1.05$.

Step 3: $\text{Amount} = 12000 \times 1.05 \times 1.05$.

Step 4: $12000 \times 1.05 = 12600$.

Step 5: $12600 \times 1.05 = 13230$.

Step 6: $\text{CI} = 13230 - 12000 = 1230$.

Why other options are wrong:

- Option A (1200): this is only the simple interest.
- Option B (1260): uses a wrong second-year base.
- Option D (1250): arithmetic slip on the compounding.

Final Answer: Rs. 1230 $\Rightarrow$ C

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

Q9.

Solution

Concept — Alligation: $\text{Ratio (cheaper : dearer)} = \frac{\text{Dearer price} - \text{Mean}}{\text{Mean} - \text{Cheaper price}}$.

Step 1: Cheaper = 60, dearer = 90, mean = 70.

Step 2: $\text{Dearer} - \text{Mean} = 90 - 70 = 20$.

Step 3: $\text{Mean} - \text{Cheaper} = 70 - 60 = 10$.

Step 4: $\text{Ratio (cheaper : dearer)} = 20 : 10$.

Step 5: Divide both by 10: $20 : 10 = 2 : 1$.

Why other options are wrong:

- Option A (1:2): reverses the two tea types.



- Option B (3:2): comes from an incorrect subtraction.
- Option D (1:1): would give a mean of Rs. 75, not Rs. 70.

Final Answer: $2 : 1 \Rightarrow$ C

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

Q10.

Solution

Concept — Partnership: For equal time periods, profit is shared in the ratio of the amounts invested.

Step 1: A : B investments = 9000 : 12000.

Step 2: Divide both by 3000: 9000 : 12000 = 3 : 4.

Step 3: Total parts = 3 + 4 = 7.

Step 4: A's part = 3 out of 7.

Step 5: A's share = $\frac{3}{7} \times 3500 = 3 \times 500 = 1500$.

Why other options are wrong:

- Option A (2000): this is B's share.
- Option C (1750): an equal split, ignoring the ratio.
- Option D (1200): uses a wrong ratio part.

Final Answer: Rs. 1500 $\Rightarrow$ B

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

Q11.

Solution

Concept — Linear Equation: Isolate x by undoing subtraction first, then division.

Step 1: $5x - 8 = 27$.

Step 2: Add 8 to both sides: $5x = 27 + 8$.

Step 3: $5x = 35$.

Step 4: Divide both sides by 5: $x = \frac{35}{5}$.



Step 5: $x = 7$.

Why other options are wrong:

- Option B (5): gives $5(5) - 8 = 17$, not 27.
- Option C (6): gives $5(6) - 8 = 22$, not 27.
- Option D (8): gives $5(8) - 8 = 32$, not 27.

Final Answer: $x = 7 \Rightarrow \boxed{A}$

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

Q12.

Solution

Concept — Quadratic Equation: Factorise into two brackets whose product is the constant and sum is the middle coefficient.

Step 1: $x^2 - 9x + 20 = 0$.

Step 2: Find two numbers with product 20 and sum 9: these are 4 and 5.

Step 3: Factorise: $(x - 4)(x - 5) = 0$.

Step 4: So $x = 4$ or $x = 5$.

Step 5: The smaller root is 4.

Why other options are wrong:

- Option A (3): is not a root of the equation.
- Option C (5): is a root, but it is the larger one.
- Option D (6): is not a root of the equation.

Final Answer: Smaller root = 4 $\Rightarrow \boxed{B}$

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

Q13.

Solution

Concept — Indices: When dividing powers with the same base, subtract the exponents: $\frac{a^m}{a^n} = a^{m-n}$.



Step 1: $\frac{3^5}{3^2} = 3^{5-2}$.

Step 2: $3^{5-2} = 3^3$.

Step 3: $3^3 = 27$.

Why other options are wrong:

- Option A (9): equals 3^2 , from subtracting wrongly.
- Option B (81): equals 3^4 .
- Option C (243): equals 3^5 , ignoring the division.

Final Answer: $27 \Rightarrow$ D

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

Q14.

Solution

Concept — HCF: The HCF is found by taking the lowest power of each prime common to both numbers.

Step 1: Prime factorise: $24 = 2^3 \times 3$.

Step 2: Prime factorise: $36 = 2^2 \times 3^2$.

Step 3: Common primes: 2 and 3. Lowest power of 2 is 2^2 ; lowest power of 3 is 3^1 .

Step 4: $\text{HCF} = 2^2 \times 3 = 4 \times 3$.

Step 5: $\text{HCF} = 12$.

Why other options are wrong:

- Option A (6): a common factor, but not the highest.
- Option B (72): this is the LCM, not the HCF.
- Option C (4): a common factor, but not the highest.

Final Answer: $12 \Rightarrow$ D

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



Q15.

Solution

Concept — Arithmetic Progression: The n th term is $a_n = a + (n - 1)d$, where a is the first term and d is the common difference.

Step 1: First term $a = 5$.

Step 2: Common difference $d = 9 - 5 = 4$.

Step 3: For the 8th term, $n = 8$: $a_8 = 5 + (8 - 1) \times 4$.

Step 4: $a_8 = 5 + 7 \times 4$.

Step 5: $a_8 = 5 + 28 = 33$.

Why other options are wrong:

- Option A (29): this is the 7th term.
- Option C (37): this is the 9th term.
- Option D (41): this is the 10th term.

Final Answer: $33 \Rightarrow$ B

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

Q16.

Solution

Concept — Order of Operations (BODMAS): Do multiplication and division before addition and subtraction.

Step 1: Expression: $20 - 4 \times 3 + 18 \div 6$.

Step 2: Multiply first: $4 \times 3 = 12$.

Step 3: Divide next: $18 \div 6 = 3$.

Step 4: Rewrite: $20 - 12 + 3$.

Step 5: Work left to right: $20 - 12 = 8$, then $8 + 3 = 11$.

Why other options are wrong:

- Option A (7): from ignoring the division term.
- Option B (9): from a wrong order of operations.
- Option D (13): from adding before subtracting incorrectly.



Final Answer: $11 \Rightarrow$ C

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

Q17.

Solution

Concept — Pythagoras Theorem: In a right triangle, $(\text{hypotenuse})^2 = (\text{leg})^2 + (\text{leg})^2$.

Step 1: The legs are 9 cm and 12 cm.

Step 2: $\text{Hypotenuse}^2 = 9^2 + 12^2$.

Step 3: $9^2 = 81$ and $12^2 = 144$.

Step 4: $\text{Hypotenuse}^2 = 81 + 144 = 225$.

Step 5: $\text{Hypotenuse} = \sqrt{225} = 15 \text{ cm}$.

Why other options are wrong:

- Option A (18): its square 324 is far too large.
- Option B (21): comes from adding the legs $9 + 12$, which is wrong.
- Option D (13): its square is only 169, not 225.

Final Answer: 15 cm $\Rightarrow$ C

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

Q18.

Solution

Concept — Area of a Circle: $\text{Area} = \pi r^2$.

Step 1: Radius $r = 14 \text{ cm}$, and $\pi = \frac{22}{7}$.

Step 2: $\text{Area} = \frac{22}{7} \times 14^2$.

Step 3: $14^2 = 196$.

Step 4: $\text{Area} = \frac{22}{7} \times 196$.

Step 5: $\frac{196}{7} = 28$, so $\text{Area} = 22 \times 28$.

Step 6: $\text{Area} = 616 \text{ cm}^2$.



Why other options are wrong:

- Option A (88): this is the circumference $2\pi r$, not the area.
- Option B (154): this is the area for a radius of 7 cm, not 14 cm.
- Option C (44): only the value of πr style slip.

Final Answer: $616 \text{ cm}^2 \Rightarrow \boxed{\text{D}}$

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

Q19.

Solution

Concept — Distance Formula: $\text{Distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$.

Step 1: $P(2, 3)$ and $Q(10, 9)$.

Step 2: $x_2 - x_1 = 10 - 2 = 8$.

Step 3: $y_2 - y_1 = 9 - 3 = 6$.

Step 4: $\text{Distance} = \sqrt{8^2 + 6^2}$.

Step 5: $= \sqrt{64 + 36} = \sqrt{100}$.

Step 6: $\text{Distance} = 10$.

Why other options are wrong:

- Option A (6): only the vertical gap, not the diagonal.
- Option B (8): only the horizontal gap, not the diagonal.
- Option D (14): equals $8 + 6$, from adding instead of using squares.

Final Answer: $10 \Rightarrow \boxed{\text{C}}$

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

Q20.

Solution

Concept — Area of a Triangle: $\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$.

Step 1: $\text{Base} = 16 \text{ cm}$, $\text{height} = 9 \text{ cm}$.

Step 2: $\text{Area} = \frac{1}{2} \times 16 \times 9$.



Step 3: $\frac{1}{2} \times 16 = 8.$

Step 4: $\text{Area} = 8 \times 9 = 72.$

Step 5: $\text{Area} = 72 \text{ cm}^2.$

Why other options are wrong:

- Option A (144): forgets the factor of $\frac{1}{2}$.
- Option B (25): equals $16 + 9$, from adding.
- Option D (50): an incorrect product.

Final Answer: $72 \text{ cm}^2 \Rightarrow \boxed{\text{C}}$

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

Q21.

Solution

Concept — Volume of a Cube: $\text{Volume} = \text{edge}^3.$

Step 1: $\text{Edge} = 7 \text{ cm}.$

Step 2: $\text{Volume} = 7^3 = 7 \times 7 \times 7.$

Step 3: $7 \times 7 = 49.$

Step 4: $49 \times 7 = 343.$

Step 5: $\text{Volume} = 343 \text{ cm}^3.$

Why other options are wrong:

- Option B (294): this is the total surface area 6×7^2 , not the volume.
- Option C (49): this is the area of one face, not the volume.
- Option D (147): equals 3×49 , an incorrect product.

Final Answer: $343 \text{ cm}^3 \Rightarrow \boxed{\text{A}}$

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



Q22.

Solution

Concept — Probability: $\text{Probability} = \frac{\text{favourable outcomes}}{\text{total outcomes}}$.

Step 1: Total outcomes = 6 (sectors 1 to 6).

Step 2: Numbers greater than 4 are 5 and 6.

Step 3: Count of favourable outcomes = 2.

Step 4: Probability = $\frac{2}{6}$.

Step 5: $\frac{2}{6} = \frac{1}{3}$.

Why other options are wrong:

- Option B (1/2): would count 3 favourable outcomes.
- Option C (2/3): would count 4 favourable outcomes.
- Option D (1/6): would count only 1 favourable outcome.

Final Answer: $\frac{1}{3} \Rightarrow \boxed{\text{A}}$

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

Q23.

Solution

Concept — Combinations: The number of ways to choose r from n is ${}^nC_r = \frac{n!}{r!(n-r)!}$.

Step 1: Here $n = 7$ and $r = 3$.

Step 2: ${}^7C_3 = \frac{7 \times 6 \times 5}{3 \times 2 \times 1}$.

Step 3: Numerator = $7 \times 6 \times 5 = 210$.

Step 4: Denominator = $3 \times 2 \times 1 = 6$.

Step 5: ${}^7C_3 = \frac{210}{6} = 35$.

Why other options are wrong:

- Option A (21): this is 7C_2 , choosing 2 not 3.
- Option B (210): this is 7P_3 (order counted), not a team.



- Option C (42): does not match the formula.

Final Answer: $35 \Rightarrow$ D

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

Q24.

Solution

Concept — Circular Permutation: The number of ways to seat n people around a round table is $(n - 1)!$.

Step 1: Here $n = 5$.

Step 2: Number of ways $= (5 - 1)!$.

Step 3: $= 4!$.

Step 4: $4! = 4 \times 3 \times 2 \times 1 = 24$.

Why other options are wrong:

- Option A (120): this is $5!$, the count for a straight row, not a circle.
- Option C (5): far too small.
- Option D (12): does not match the circular rule.

Final Answer: $24 \Rightarrow$ B

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

Q25.

Solution

Concept — Table Reading (Total): Add the 2023 column for all four states.

Step 1: 2023 tourists: Kerala = 180, Goa = 210, Rajasthan = 250, Assam = 130.

Step 2: $180 + 210 = 390$.

Step 3: $390 + 250 = 640$.

Step 4: $640 + 130 = 770$.

Why other options are wrong:

- Option A (690): drops part of one state's figure.



- Option B (710): an incorrect sum.
- Option C (750): an incorrect sum.

Final Answer: 770 thousand $\Rightarrow$ D

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

Q26.

Solution

Concept — Table Reading (Change): Compute the increase (2023 – 2021) for each state and compare.

Step 1: Kerala: $180 - 120 = 60$.

Step 2: Goa: $210 - 200 = 10$.

Step 3: Rajasthan: $250 - 160 = 90$.

Step 4: Assam: $130 - 90 = 40$.

Step 5: The largest increase is 90, for Rajasthan.

Why other options are wrong:

- Option A (Kerala): increase is only 60.
- Option B (Goa): increase is only 10.
- Option D (Assam): increase is only 40.

Final Answer: Rajasthan $\Rightarrow$ C

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

Q27.

Solution

Concept — Percentage Change: Percentage increase = $\frac{\text{increase}}{\text{original}} \times 100$.

Step 1: Kerala's 2021 tourists = 120, 2023 tourists = 180.

Step 2: Increase = $180 - 120 = 60$.

Step 3: Percentage increase = $\frac{60}{120} \times 100$.

Step 4: $\frac{60}{120} = 0.5$.



Step 5: $0.5 \times 100 = 50\%$.

Why other options are wrong:

- Option B (40%): uses a wrong fraction.
- Option C (60%): confuses the raw increase with the percentage.
- Option D (33.3%): uses 180 as the base, which is wrong.

Final Answer: $50\% \Rightarrow$ A

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

Q28.

Solution

Concept — Ratio from a Table: Form the ratio and reduce it to lowest terms.

Step 1: Assam's 2021 tourists = 90; Goa's 2023 tourists = 210.

Step 2: Ratio = 90 : 210.

Step 3: Divide both by 30: 90 : 210 = 3 : 7.

Step 4: 3 and 7 share no common factor, so the ratio is final.

Why other options are wrong:

- Option A (7 : 3): reverses the two values.
- Option B (9 : 20): mis-reduces the ratio.
- Option C (2 : 5): does not reduce from 90 : 210.

Final Answer: 3 : 7 $\Rightarrow$ D

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

Q29.

Solution

Concept — Pie Chart (Part Value): A continent's population = its percentage share $\times$ the total.

Step 1: Africa's share = 20% and the total = 8000 million.

Step 2: Africa's population = $\frac{20}{100} \times 8000$.



Step 3: $\frac{20}{100} = 0.2$.

Step 4: $0.2 \times 8000 = 1600$.

Why other options are wrong:

- Option A (1200): this is the Americas' population (15%).
- Option C (800): this is Europe's population (10%).
- Option D (2000): uses a share of 25%, which is wrong.

Final Answer: 1600 million $\Rightarrow$ **B**

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

Q30.

Solution

Concept — Pie Chart (Comparison): To compare two parts, divide one percentage share by the other.

Step 1: Asia's share = 50%; Europe's share = 10%.

Step 2: Required multiple = $\frac{50}{10}$.

Step 3: $\frac{50}{10} = 5$.

Step 4: So Asia's population is 5 times Europe's.

Why other options are wrong:

- Option A (4): uses a wrong division.
- Option C (2): compares the wrong pair of shares.
- Option D (10): doubles the correct multiple.

Final Answer: 5 times $\Rightarrow$ **B**

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

Q31.

Solution

Concept — Pie Chart (Central Angle): A sector's central angle = its percentage share $\times 360^\circ$.



Step 1: The Americas' share = 15%.

Step 2: Central angle = $\frac{15}{100} \times 360$.

Step 3: $\frac{15}{100} = 0.15$.

Step 4: $0.15 \times 360 = 54$.

Step 5: Central angle = 54° .

Why other options are wrong:

- Option A (36): this is the angle for a 10% share.
- Option B (45): does not match any share here.
- Option D (60): this would need a share of about 16.7%.

Final Answer: $54^\circ \Rightarrow$ C

Answer: (C) [Go Back to Q31](#)

Q32.

Solution

Concept — Pie Chart (Combined Value): Add the two individual populations, each found from its percentage share of the total.

Step 1: Europe = 10% of 8000 = 800 million.

Step 2: Oceania = 5% of 8000 = 400 million.

Step 3: Combined = $800 + 400$.

Step 4: Combined = 1200 million.

Why other options are wrong:

- Option A (1000): uses a wrong share for one continent.
- Option C (1400): overcounts one of the two shares.
- Option D (800): counts only Europe, leaving out Oceania.

Final Answer: 1200 million $\Rightarrow$ B

Answer: (B) [Go Back to Q32](#)



Q33.

Solution

Concept — Data Sufficiency: Test each statement alone for a unique answer.

Step 1: Statement I: $3y = 21$ gives $y = 7$, a single unique value. So I alone is sufficient.

Step 2: Statement II: y is a prime number less than 10, so y could be 2, 3, 5 or 7. Not unique, so II alone is not sufficient.

Step 3: Since I alone works and II alone does not, the answer is option A.

Why other options are wrong:

- Option B: II alone is not sufficient, so this is false.
- Option C: I already suffices alone, so we do not need both.
- Option D: II alone does not suffice, so “each alone” is false.

Final Answer: Statement I alone is sufficient $\Rightarrow$ A

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

Q34.

Solution

Concept — Data Sufficiency: Check whether each statement alone pins down a single two-digit number, then test them together.

Step 1: Statement I: the digits add to 9. Many numbers fit (18, 27, 36, 45, 54, 63, 72, 81, 90). Not unique, so I alone is not sufficient.

Step 2: Statement II: the tens digit is twice the units digit. Options are 21, 42, 63, 84. Not unique, so II alone is not sufficient.

Step 3: Take both together: let the units digit be u and the tens digit be $2u$. Their sum $u + 2u = 3u = 9$, so $u = 3$ and the tens digit = 6.

Step 4: The number is 63, which is unique. So both together are sufficient, but neither alone is.

Why other options are wrong:

- Option A: I alone leaves many numbers, so it is not sufficient.
- Option B: II alone leaves four numbers, so it is not sufficient.
- Option D: neither statement works on its own.



Final Answer: Both statements together are sufficient $\Rightarrow$ C

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

Q35.

Solution

Concept — Data Sufficiency: For a yes/no question, a statement is sufficient if it always gives the same answer.

Step 1: Statement I: $x = 15$, which is greater than 10, so the answer is a definite “yes”. I alone is sufficient.

Step 2: Statement II: x is a positive even number. It could be 2 (answer “no”) or 20 (answer “yes”). The answer is not fixed, so II alone is not sufficient.

Step 3: Since I alone works and II alone does not, the answer is option A.

Why other options are wrong:

- Option B: II alone gives both a “yes” and a “no”, so it is not sufficient.
- Option C: I already suffices alone, so both are not needed.
- Option D: II alone does not suffice, so “each alone” is false.

Final Answer: Statement I alone is sufficient $\Rightarrow$ A

Answer: (A) [Go Back to Q35](#)

Q36.

Solution

Concept — Data Sufficiency: The area of a rectangle needs both length and breadth; a single relation between them is not enough.

Step 1: Statement I: the perimeter is 26 cm, so $\text{length} + \text{breadth} = 13$ cm. Many pairs fit (for example 8 and 5, or 9 and 4), giving different areas. So I alone is not sufficient.

Step 2: Statement II: $\text{length} = 8$ cm and $\text{breadth} = 5$ cm, so $\text{area} = 8 \times 5 = 40$ cm². This is a single value, so II alone is sufficient.

Step 3: Since II alone works and I alone does not, the answer is option B.

Why other options are wrong:

- Option A: I alone leaves the area undetermined, so this is false.



- Option C: II already suffices alone, so both are not needed.
- Option D: I alone does not suffice, so “each alone” is false.

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

Answer: (B) [Go Back to Q36](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	A	2	D	3	A	4	A	5	B
6	D	7	D	8	C	9	C	10	B
11	A	12	B	13	D	14	D	15	B
16	C	17	C	18	D	19	C	20	C
21	A	22	A	23	D	24	B	25	D
26	C	27	A	28	D	29	B	30	B
31	C	32	B	33	A	34	C	35	A
36	B								

