

# KMAT Quantitative Ability

## Sample Paper – 1

Duration: 40 Minutes

Maximum Marks: 40

### Instructions

- This paper contains **40 Multiple Choice Questions (Single Correct Answer)**, modelled on the Quantitative Ability section of the **KMAT Karnataka** entrance examination.
- Each correct answer carries **+1 mark**. There is **no negative marking** for incorrect or unattempted answers – attempt every question.
- Only **one** option is correct per question. Choose carefully.
- Syllabus level: **MBA entrance – Arithmetic, Data Interpretation, Number System, Algebra, Ratio & Proportion, Geometry, Modern Mathematics, Trigonometry & Statistics.**
- Personal calculators, mobile phones, and other electronic gadgets are strictly prohibited inside the examination hall.
- The full KMAT paper is 120 questions in 120 minutes across three sections; there are **no sectional time limits** – allocate approximately 40 minutes to this Quantitative Ability section.

**Q1.** The revenue of a company increased by 20% in 2023 and then decreased by 10% in 2024. What is the net percentage change in revenue?

- (A) 8% increase
- (B) 10% increase
- (C) 2% decrease
- (D) 8% decrease

**Q2.** If 30% of a number is 45, what is 70% of the same number?

- (A) 95



- (B) 105
- (C) 115
- (D) 120

**Q3.** After a 15% salary increase, an employee earns Rs. 46,000 per month. What was the original salary?

- (A) Rs. 38,000
- (B) Rs. 39,000
- (C) Rs. 40,000
- (D) Rs. 41,000

**Q4.** A shopkeeper buys goods for Rs. 800 and marks the price up by 25%. He then gives a 10% discount on the marked price. What is his profit percentage?

- (A) 10%
- (B) 11%
- (C) 12%
- (D) 12.5%

**Q5.** Two items are sold at Rs. 2,400 each. On the first item there is a 20% profit, and on the second there is a 20% loss. What is the overall result?

- (A) 4% loss
- (B) No profit, no loss
- (C) 4% profit
- (D) 2% loss

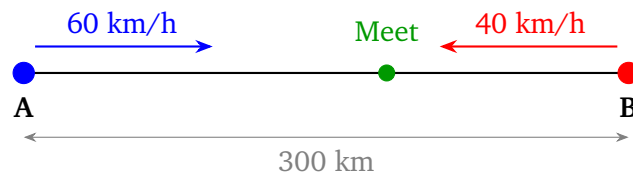
**Q6.** A train 150 m long passes a platform 250 m long in 40 seconds. What is the speed of the train?

- (A) 30 km/h



- (B) 36 km/h
- (C) 40 km/h
- (D) 45 km/h

**Q7.** Two cars leave cities A and B simultaneously, moving toward each other. The car from A travels at 60 km/h and the car from B travels at 40 km/h. The distance between A and B is 300 km. At what distance from city A do they meet?



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

**Q8.** A can complete a piece of work in 12 days and B can complete the same work in 18 days. If they work together, how many days will it take to complete the work?

- (A) 6 days
- (B) 6.5 days
- (C) 7 days
- (D) 7.2 days

**Q9.** A pipe fills a tank in 6 hours and another pipe empties it in 10 hours. If both pipes are open simultaneously, how long will it take to fill the tank?

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



(D) 20 hours

**Q10.** Find the simple interest on Rs. 5,000 at 8% per annum for 3 years.

(A) Rs. 1,000

(B) Rs. 1,200

(C) Rs. 1,400

(D) Rs. 1,600

**Q11.** A sum of money amounts to Rs. 6,050 in 2 years at 10% compound interest per annum. What is the principal?

(A) Rs. 4,500

(B) Rs. 4,800

(C) Rs. 5,000

(D) Rs. 5,200

**Q12.** A milkman mixes 2 litres of water with 10 litres of milk costing Rs. 20 per litre. He sells the mixture at the cost price of milk. What is his profit percentage?

(A) 10%

(B) 15%

(C) 18%

(D) 20%

**Q13.** A trader uses an 800 g weight instead of 1 kg. What is his profit percentage?

(A) 25%

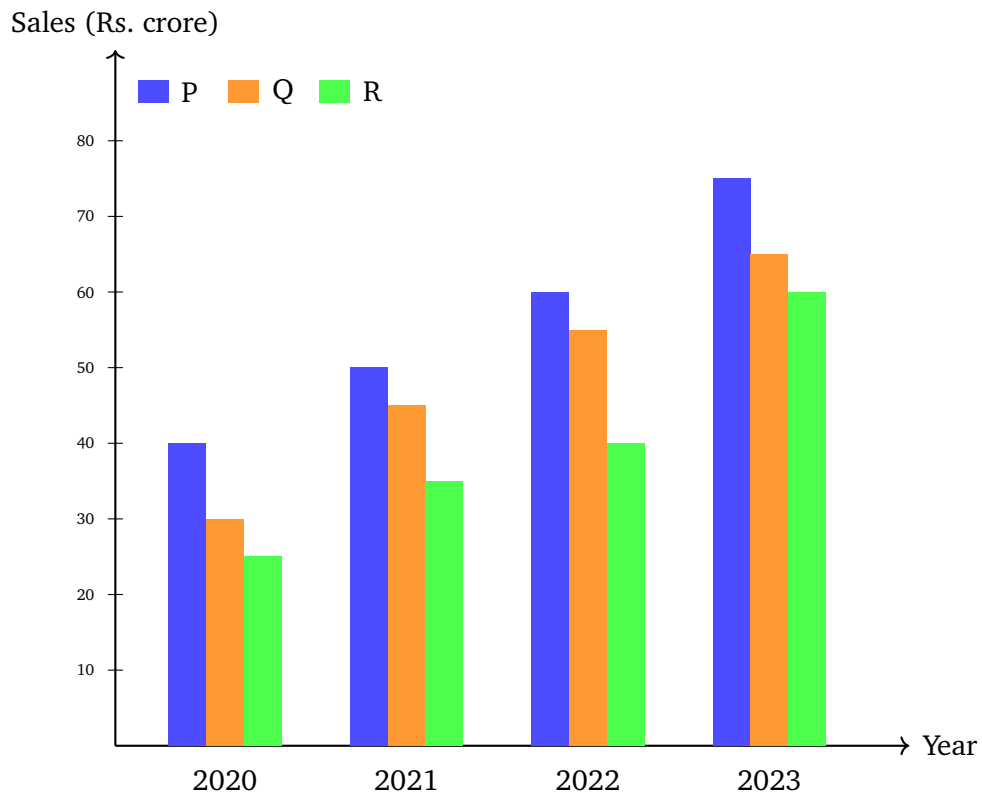
(B) 20%

(C) 22%

(D) 28%



**Directions (Q14–Q17):** Study the following grouped bar chart showing the annual sales (in Rs. crore) of three companies P, Q, and R from 2020 to 2023, then answer questions 14 to 17.



- Q14.** Based on the bar chart above: Which company had the highest total sales over the four-year period (2020–2023)?
- (A) Company R  
(B) Company P  
(C) Company Q  
(D) All equal
- Q15.** Based on the bar chart above: What is the percentage increase in Company P's sales from 2020 to 2023?
- (A) 75%  
(B) 80%  
(C) 87.5%  
(D) 90%



- Q16.** Based on the bar chart above: In which year was the ratio of Company Q's sales to Company R's sales the highest?
- (A) 2020  
(B) 2021  
(C) 2023  
(D) 2022
- Q17.** Based on the bar chart above: What was the average annual sales of Company R over the four-year period?
- (A) Rs. 40 crore  
(B) Rs. 45 crore  
(C) Rs. 35 crore  
(D) Rs. 50 crore

**Directions (Q18–Q21):** Study the following table showing marks (out of 100) scored by five students in four subjects, then answer questions 18 to 21.

| Student | Maths | English | Science | Social | Total |
|---------|-------|---------|---------|--------|-------|
| Anil    | 75    | 82      | 68      | 90     | 315   |
| Bina    | 85    | 70      | 78      | 65     | 298   |
| Charu   | 60    | 75      | 85      | 72     | 292   |
| Dev     | 90    | 88      | 72      | 80     | 330   |
| Ela     | 55    | 65      | 60      | 70     | 250   |

- Q18.** Based on the table above: Which student scored the highest total marks?
- (A) Anil  
(B) Dev  
(C) Bina  
(D) Charu



- Q19.** Based on the table above: What is the average score in Mathematics across all five students?
- (A) 70  
(B) 71  
(C) 73  
(D) 75
- Q20.** Based on the table above: How many students scored above 75 marks in English?
- (A) 4  
(B) 3  
(C) 1  
(D) 2
- Q21.** Based on the table above: What is the difference between the highest and the lowest total scores?
- (A) 80  
(B) 70  
(C) 60  
(D) 85
- Q22.** What is the LCM of 12, 18, 24, and 36?
- (A) 36  
(B) 72  
(C) 144  
(D) 108
- Q23.** What is the HCF of 144 and 108?
- (A) 18



- (B) 24
- (C) 36
- (D) 48

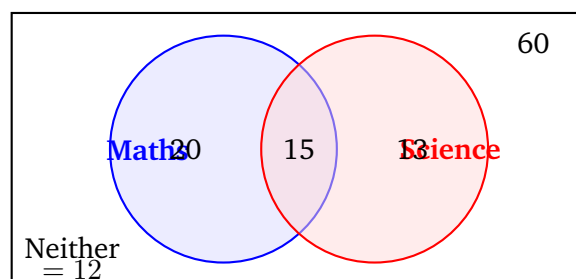
**Q24.** Find the smallest number which, when divided by 5, leaves a remainder of 3, and when divided by 7, leaves a remainder of 4.

- (A) 13
- (B) 33
- (C) 28
- (D) 18

**Q25.** How many integers between 1 and 100 (inclusive) are divisible by both 3 and 7?

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

**Q26.** In a group of 60 students, 35 study Mathematics, 28 study Science, and 15 study both subjects. How many students study neither subject?



- (A) 10
- (B) 12
- (C) 8
- (D) 14



**Q27.** Find the roots of the quadratic equation  $x^2 - 5x + 6 = 0$ .

- (A) 1 and 6
- (B) 1 and 5
- (C) 2 and 3
- (D) 3 and 4

**Q28.** If  $x + \frac{1}{x} = 5$ , find the value of  $x^2 + \frac{1}{x^2}$ .

- (A) 21
- (B) 24
- (C) 25
- (D) 23

**Q29.** Find the sum of the first 20 terms of the arithmetic progression: 3, 7, 11, 15, ...

- (A) 820
- (B) 800
- (C) 840
- (D) 760

**Q30.** Two numbers are in the ratio 3 : 4 and their sum is 84. Find the larger number.

- (A) 36
- (B) 48
- (C) 42
- (D) 54

**Q31.** Divide Rs. 1,800 among A, B, and C in the ratio 2 : 3 : 4. What is C's share?

- (A) Rs. 400



- (B) Rs. 600
- (C) Rs. 800
- (D) Rs. 1,000

**Q32.** In what ratio should water (cost Rs. 0) be mixed with milk costing Rs. 40 per litre so that the mixture costs Rs. 32 per litre?

$$\begin{array}{ccc}
 \text{Rs. } 40 & & \text{Rs. } 0 \\
 & \searrow \quad \swarrow & \\
 32 - 0 = 32 & & 40 - 32 = 8 \\
 & \text{Rs. } 32 &
 \end{array}$$

$$\text{Milk : Water} = 32 : 8 = 4 : 1$$

- (A) 3 : 5
- (B) 5 : 3
- (C) 3 : 4
- (D) 1 : 4

**Q33.** A, B, and C invest Rs. 12,000, Rs. 15,000, and Rs. 18,000 respectively in a business. At the year end, the total profit is Rs. 18,000. What is B's share of the profit?

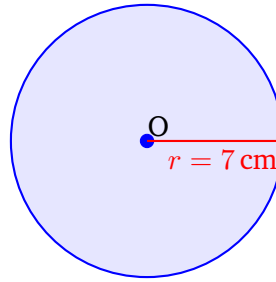
- (A) Rs. 6,000
- (B) Rs. 4,500
- (C) Rs. 7,200
- (D) Rs. 5,400

**Q34.** The ages of A and B are in the ratio 4 : 5. After 5 years, the ratio becomes 5 : 6. What is A's present age?

- (A) 15 years
- (B) 20 years
- (C) 25 years
- (D) 18 years

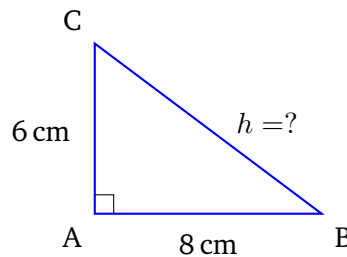


**Q35.** A circle has a radius of 7 cm. What is its area? (Use  $\pi = \frac{22}{7}$ )



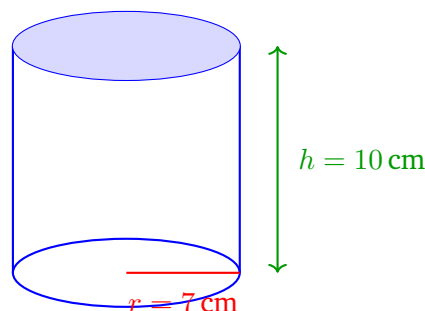
- (A)  $44 \text{ cm}^2$
- (B)  $132 \text{ cm}^2$
- (C)  $154 \text{ cm}^2$
- (D)  $176 \text{ cm}^2$

**Q36.** In a right-angled triangle, the two legs are 6 cm and 8 cm. What is the length of the hypotenuse?



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

**Q37.** A cylinder has a base radius of 7 cm and a height of 10 cm. What is its volume? (Use  $\pi = \frac{22}{7}$ )

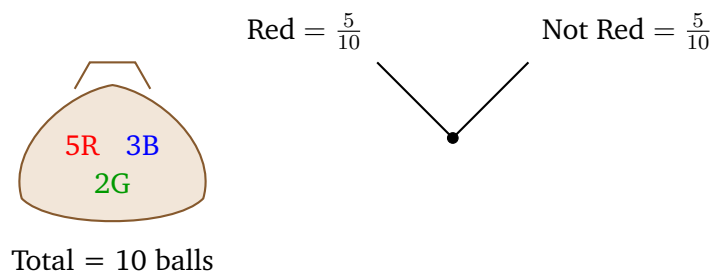


- (A)  $1540 \text{ cm}^3$
- (B)  $1320 \text{ cm}^3$
- (C)  $1760 \text{ cm}^3$
- (D)  $2200 \text{ cm}^3$

**Q38.** In how many ways can all 6 letters of the word “MASTER” be arranged?

- (A) 360
- (B) 720
- (C) 120
- (D) 1440

**Q39.** A bag contains 5 red, 3 blue, and 2 green balls. One ball is drawn at random. What is the probability that the ball drawn is NOT red?



- (A)  $\frac{3}{10}$
- (B)  $\frac{2}{5}$
- (C)  $\frac{1}{2}$
- (D)  $\frac{3}{5}$

**Q40.** Find the arithmetic mean of the following data: 15, 22, 18, 27, 31, 14, 19, 24.

- (A) 20
- (B) 20.5
- (C) 21
- (D) 21.25



Detailed Solutions

Q1.

Solution

**Concept — Successive Percentage Change:** When a quantity increases by  $a\%$  then decreases by  $b\%$ , the net change is  $\left(a - b - \frac{ab}{100}\right)\%$ .

**Step 1 — Apply formula:** Net change =  $20 - 10 - \frac{20 \times 10}{100} = 10 - 2 = 8\%$  increase.

**Step 2 — Verify with numbers:** If original revenue = 100, after 20% increase = 120, after 10% decrease =  $120 \times 0.90 = 108$ . Net change = 8% increase.

**Why other options are wrong:**

- Option A: Correct — 8% increase.
- Option B: 10% would ignore the compounding effect of the decrease.
- Option C: 2% decrease would result only if the decrease were applied to the original value.
- Option D: 8% decrease is the reverse sign error.

**Final Answer:** Net change is 8% increase  $\Rightarrow$  A

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

Q2.

Solution

**Concept — Percentage of a Number:** If  $x\%$  of  $N = k$ , then  $N = \frac{100k}{x}$ , and any other percentage is computed from  $N$ .

**Step 1 — Find the number:**  $30\%$  of  $N = 45 \Rightarrow N = \frac{45 \times 100}{30} = 150$ .

**Step 2 — Find 70%:**  $70\%$  of  $150 = \frac{70 \times 150}{100} = 105$ .

**Why other options are wrong:**

- Option A: 95 corresponds to roughly 63% of 150, not 70%.
- Option B: Correct — 105.
- Option C: 115 would require  $N \approx 164$ .
- Option D: 120 would give  $N = \frac{120 \times 100}{70} \approx 171$ , not 150.

**Final Answer:** 70% of the number = 105  $\Rightarrow$  B



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

**Q3.**

### Solution

**Concept — Reverse Percentage:** If the new value after a  $p\%$  increase is  $V$ , then  

$$\text{original} = \frac{V \times 100}{100 + p}.$$

**Step 1 — Apply formula:** Original salary =  $\frac{46,000 \times 100}{115} = \frac{46,00,000}{115} = 40,000.$

**Step 2 — Verify:** Rs. 40,000  $\times 1.15$  = Rs. 46,000. ✓

**Why other options are wrong:**

- Option A: Rs. 38,000  $\times 1.15$  = 43,700  $\neq$  46,000.
- Option B: Rs. 39,000  $\times 1.15$  = 44,850  $\neq$  46,000.
- Option C: Correct — Rs. 40,000.
- Option D: Rs. 41,000  $\times 1.15$  = 47,150  $\neq$  46,000.

**Final Answer:** Original salary = Rs. 40,000  $\Rightarrow$  **C**

**Answer: (C)** [Go Back to Q3](#)

**Q4.**

### Solution

**Concept — Marked Price and Discount:**  $SP = MP \times \left(1 - \frac{\text{discount}\%}{100}\right)$ ; profit%  

$$= \frac{SP - CP}{CP} \times 100.$$

**Step 1 — Find Marked Price:**  $MP = 800 \times 1.25 = \text{Rs. } 1,000.$

**Step 2 — Find Selling Price:**  $SP = 1,000 \times 0.90 = \text{Rs. } 900.$

**Step 3 — Find Profit%:** Profit% =  $\frac{900 - 800}{800} \times 100 = \frac{100}{800} \times 100 = 12.5\%.$

**Why other options are wrong:**

- Option A: 10% ignores the combined effect of markup and discount.
- Option B: 11% is close but not exact.
- Option C: 12% is slightly less than the actual value.
- Option D: Correct — 12.5%.

**Final Answer:** Profit percentage = 12.5%  $\Rightarrow$  **D**



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

**Q5.**

**Solution**

**Concept — Equal SP with Equal % Profit and Loss:** When two items are sold at the same SP with equal % profit and loss, there is always a net loss.  $\text{Loss\%} = \frac{(\text{common \%})^2}{100}$ .

**Step 1 — CP of item 1 (20% profit):**  $CP_1 = \frac{2400}{1.20} = \text{Rs. } 2,000$ .

**Step 2 — CP of item 2 (20% loss):**  $CP_2 = \frac{2400}{0.80} = \text{Rs. } 3,000$ .

**Step 3 — Overall result:** Total CP = 5,000; Total SP = 4,800. Loss = 200.  $\text{Loss\%} = \frac{200}{5000} \times 100 = 4\%$ .

**Why other options are wrong:**

- Option A: Correct — 4% loss.
- Option B: No profit/no loss is impossible when equal % profit and loss at same SP.
- Option C: A profit is impossible in this scenario.
- Option D: 2% loss is half the correct value.

**Final Answer:** Overall result is 4% loss  $\Rightarrow$  **A**

**Answer: (A)** [Go Back to Q5](#)

**Q6.**

**Solution**

**Concept — Train Crossing a Platform:** Distance covered = Length of train + Length of platform;  $\text{Speed} = \frac{\text{Total distance}}{\text{Time}}$ .

**Step 1 — Total distance:**  $150 + 250 = 400 \text{ m}$ .

**Step 2 — Speed in m/s:**  $\text{Speed} = \frac{400}{40} = 10 \text{ m/s}$ .

**Step 3 — Convert to km/h:**  $10 \times \frac{18}{5} = 36 \text{ km/h}$ .

**Why other options are wrong:**

- Option A:  $30 \text{ km/h} = 8.33 \text{ m/s}$ ; would cover only 333 m in 40 s.



- Option B: Correct — 36 km/h.
- Option C: 40 km/h = 11.1 m/s; would need 44.4 s.
- Option D: 45 km/h = 12.5 m/s; would need only 32 s.

**Final Answer:** Speed of train = 36 km/h  $\Rightarrow$  **B**

**Answer: (B)** [Go Back to Q6](#)

**Q7.**

### Solution

**Concept — Relative Speed (Opposite Directions):** Two objects moving toward each other meet when their combined distance equals the total separation. Time to meet =  $\frac{D}{v_1 + v_2}$ ; distance from A =  $v_1 \times t$ .

**Step 1 — Time to meet:**  $t = \frac{300}{60 + 40} = \frac{300}{100} = 3$  hours.

**Step 2 — Distance from A:**  $d = 60 \times 3 = 180$  km.

**Why other options are wrong:**

- Option A: 120 km corresponds to car from B's distance ( $40 \times 3$ ), not from A.
- Option B: 150 km would be the midpoint; only correct if speeds are equal.
- Option C: Correct — 180 km.
- Option D: 200 km exceeds the total distance divided in 3:2 ratio.

**Final Answer:** Meeting point is 180 km from city A  $\Rightarrow$  **C**

**Answer: (C)** [Go Back to Q7](#)

**Q8.**

### Solution

**Concept — Combined Work Rate:** If A finishes in  $m$  days and B in  $n$  days, together they finish in  $\frac{mn}{m+n}$  days.

**Step 1 — Apply formula:** Days =  $\frac{12 \times 18}{12 + 18} = \frac{216}{30} = 7.2$  days.

**Step 2 — Verify via work rates:** A's rate =  $\frac{1}{12}$ , B's rate =  $\frac{1}{18}$ . Together:  $\frac{1}{12} + \frac{1}{18} = \frac{3+2}{36} = \frac{5}{36}$ . Time =  $\frac{36}{5} = 7.2$  days. ✓

**Why other options are wrong:**



- Option A: 6 days ignores B's slower contribution.
- Option B: 6.5 days is slightly less than the correct value.
- Option C: 7 days is close but not exact ( $\frac{36}{5} = 7.2$ ).
- Option D: Correct — 7.2 days.

**Final Answer:** Together they complete the work in 7.2 days  $\Rightarrow$  **D**

**Answer: (D)** [Go Back to Q8](#)

**Q9.**

### Solution

**Concept — Pipes (Inlet and Outlet):** Net filling rate = inlet rate – outlet rate.  
 Time to fill =  $\frac{1}{\text{net rate}}$ .

**Step 1 — Net rate per hour:** Filling rate =  $\frac{1}{6}$ , emptying rate =  $\frac{1}{10}$ . Net =  $\frac{1}{6} - \frac{1}{10} = \frac{5-3}{30} = \frac{2}{30} = \frac{1}{15}$ .

**Step 2 — Time to fill:**  $\frac{1}{\frac{1}{15}} = 15$  hours.

**Why other options are wrong:**

- Option A: Correct — 15 hours.
- Option B: 12 hours would require a net rate of  $\frac{1}{12}$ , which is not the case.
- Option C: 18 hours is too slow.
- Option D: 20 hours corresponds to a net rate of  $\frac{1}{20}$ , which would result from different pipe capacities.

**Final Answer:** Time to fill the tank = 15 hours  $\Rightarrow$  **A**

**Answer: (A)** [Go Back to Q9](#)

**Q10.**

### Solution

**Concept — Simple Interest Formula:**  $SI = \frac{P \times R \times T}{100}$ , where P = Principal, R = Rate%, T = Time in years.

**Step 1 — Substitute values:**  $SI = \frac{5000 \times 8 \times 3}{100} = \frac{1,20,000}{100} = \text{Rs. } 1,200$ .

**Why other options are wrong:**



- Option A: Rs. 1,000 corresponds to only  $\frac{1000 \times 100}{5000 \times 3} \approx 6.67\%$  rate.
- Option B: Correct — Rs. 1,200.
- Option C: Rs. 1,400 would need  $T \approx 3.5$  years.
- Option D: Rs. 1,600 would need  $T = 4$  years.

**Final Answer:** Simple Interest = Rs. 1,200  $\Rightarrow$  **B**

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

**Q11.**

**Solution**

**Concept — Compound Interest (Reverse):**  $A = P \left(1 + \frac{r}{100}\right)^n$ . To find P:  $P = \frac{A}{\left(1 + \frac{r}{100}\right)^n}$ .

**Step 1 — Calculate factor:**  $\left(1 + \frac{10}{100}\right)^2 = (1.1)^2 = 1.21$ .

**Step 2 — Find Principal:**  $P = \frac{6050}{1.21} = 5,000$ .

**Step 3 — Verify:**  $5000 \times 1.21 = 6050$ . ✓

**Why other options are wrong:**

- Option A:  $\text{Rs. } 4,500 \times 1.21 = 5,445 \neq 6,050$ .
- Option B:  $\text{Rs. } 4,800 \times 1.21 = 5,808 \neq 6,050$ .
- Option C: Correct — Rs. 5,000.
- Option D:  $\text{Rs. } 5,200 \times 1.21 = 6,292 \neq 6,050$ .

**Final Answer:** Principal = Rs. 5,000  $\Rightarrow$  **C**

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

**Q12.**

**Solution**

**Concept — Mixture Profit:** When water (zero cost) is mixed with milk, profit comes from selling the water at milk's price.  $\text{Profit\%} = \frac{\text{quantity of water}}{\text{quantity of milk}} \times 100$ .

**Step 1 — Cost price of mixture:** Only milk has cost.  $\text{CP} = 10 \times 20 = \text{Rs. } 200$ .

**Step 2 — Selling price:** Total mixture = 12 litres sold at Rs. 20/litre.  $\text{SP} =$



$$12 \times 20 = \text{Rs. } 240.$$

**Step 3 — Profit%:**  $\text{Profit\%} = \frac{240 - 200}{200} \times 100 = \frac{40}{200} \times 100 = 20\%.$

**Why other options are wrong:**

- Option A: 10% is half the correct value.
- Option B: 15% does not match the calculation.
- Option C: 18% is close but incorrect.
- Option D: Correct — 20%.

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

**Answer: (D)** [Go Back to Q12](#)

**Q13.**

### Solution

**Concept — False Weight Profit:**  $\text{Profit\%} = \frac{\text{True weight} - \text{False weight}}{\text{False weight}} \times 100.$

**Step 1 — Apply formula:**  $\text{Profit\%} = \frac{1000 - 800}{800} \times 100 = \frac{200}{800} \times 100 = 25\%.$

**Step 2 — Intuition:** For every 800 g sold, trader charges for 1000 g, gaining 200 g extra per transaction, which is 25% of 800 g.

**Why other options are wrong:**

- Option A: Correct — 25%.
- Option B: 20% would apply if the error were  $\frac{200}{1000}$  (using true weight in denominator).
- Option C: 22% does not correspond to this weight error.
- Option D: 28% is higher than the correct value.

**Final Answer:** Profit percentage = 25%  $\Rightarrow$  A

**Answer: (A)** [Go Back to Q13](#)



Q14.

**Solution**

**Concept — Data Interpretation (Bar Chart):** Read values from the bar chart in the Directions and sum across years to compare totals.

**Step 1 — Total sales from the bar chart:**

- Company P:  $40 + 50 + 60 + 75 = 225$  crore.
- Company Q:  $30 + 45 + 55 + 65 = 195$  crore.
- Company R:  $25 + 35 + 40 + 60 = 160$  crore.

**Step 2 — Compare:**  $P (225) > Q (195) > R (160)$ . Company P had the highest total.

**Why other options are wrong:**

- Option A: Company R had the lowest total at Rs. 160 crore.
- Option B: Correct — Company P with Rs. 225 crore.
- Option C: Company Q is second at Rs. 195 crore.
- Option D: Totals are clearly unequal.

**Final Answer:** Company P had the highest total sales  $\Rightarrow$  **B**

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

Q15.

**Solution**

**Concept — Percentage Increase from Bar Chart:**  $\% \text{ increase} = \frac{\text{New} - \text{Old}}{\text{Old}} \times 100$ .

**Step 1 — Read values:** Company P: 2020 sales = 40 crore; 2023 sales = 75 crore (from bar chart in the Directions).

**Step 2 — Calculate:**  $\% \text{ increase} = \frac{75 - 40}{40} \times 100 = \frac{35}{40} \times 100 = 87.5\%$ .

**Why other options are wrong:**

- Option A: 75% would require an increase of 30 crore (i.e., from 40 to 70).
- Option B: 80% would require going from 40 to 72.
- Option C: Correct — 87.5%.
- Option D: 90% would mean going from 40 to 76.

**Final Answer:** Percentage increase for Company P = 87.5%  $\Rightarrow$  **C**



**Answer: (C)** [Go Back to Q15](#)

**Q16.**

**Solution**

**Concept — Ratio Comparison from Bar Chart:** Calculate Q/R for each year and identify the maximum ratio.

**Step 1 — Compute ratios (from bar chart in the Directions):**

- 2020:  $\frac{30}{25} = 1.20$
- 2021:  $\frac{45}{35} \approx 1.286$
- 2022:  $\frac{55}{40} = 1.375$
- 2023:  $\frac{65}{60} \approx 1.083$

**Step 2 — Identify maximum:** Highest ratio is in 2022 at 1.375.

**Why other options are wrong:**

- Option A: 2020 ratio = 1.20, not the highest.
- Option B: 2021 ratio  $\approx 1.286$ , second highest.
- Option C: 2023 ratio  $\approx 1.083$ , the lowest.
- Option D: Correct — 2022 ratio = 1.375 is highest.

**Final Answer:** Ratio Q/R was highest in 2022  $\Rightarrow$  **D**

**Answer: (D)** [Go Back to Q16](#)

**Q17.**

**Solution**

**Concept — Average from Bar Chart:**  $\text{Average} = \frac{\text{Sum of all values}}{\text{Number of years}}$ .

**Step 1 — Sum Company R's sales (from bar chart in the Directions):**  $25 + 35 + 40 + 60 = 160$  crore.

**Step 2 — Average:**  $\frac{160}{4} = 40$  crore.

**Why other options are wrong:**

- Option A: Correct — Rs. 40 crore.
- Option B: Rs. 45 crore would require total = 180 crore.
- Option C: Rs. 35 crore would require total = 140 crore.



- Option D: Rs. 50 crore would require total = 200 crore.

**Final Answer:** Average annual sales of Company R = Rs. 40 crore  $\Rightarrow$  **A**

**Answer: (A)** [Go Back to Q17](#)

**Q18.**

### Solution

**Concept — Data Interpretation (Table):** Compare the Total column from the table in the Directions to identify the maximum.

**Step 1 — Read totals from the table:** Anil = 315, Bina = 298, Charu = 292, Dev = 330, Ela = 250.

**Step 2 — Identify maximum:** Dev has the highest total of 330.

**Why other options are wrong:**

- Option A: Anil scored 315, not the highest.
- Option B: Correct — Dev scored 330.
- Option C: Bina scored 298.
- Option D: Charu scored 292.

**Final Answer:** Dev scored the highest total marks (330)  $\Rightarrow$  **B**

**Answer: (B)** [Go Back to Q18](#)

**Q19.**

### Solution

**Concept — Average from Table:**  $\text{Average} = \frac{\text{Sum of Maths scores}}{\text{Number of students}}$

**Step 1 — Sum Maths scores (from table in the Directions):**  $75 + 85 + 60 + 90 + 55 = 365$ .

**Step 2 — Average:**  $\frac{365}{5} = 73$ .

**Why other options are wrong:**

- Option A: 70 would require sum = 350; actual sum is 365.
- Option B: 71 would require sum = 355.
- Option C: Correct — 73 (sum = 365,  $365 \div 5 = 73$ ).
- Option D: 75 would require sum = 375.



**Final Answer:** Average Maths score = 73  $\Rightarrow$  C

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

**Q20.**

### Solution

**Concept — Counting from Table:** Scan the English column from the table in the Directions and count values  $> 75$ .

**Step 1 — English scores:** Anil = 82, Bina = 70, Charu = 75, Dev = 88, Ela = 65.

**Step 2 — Count scores above 75:** Anil (82) and Dev (88) scored above 75. Charu scored exactly 75, which is not above 75.

**Step 3 — Count:** 2 students.

**Why other options are wrong:**

- Option A: 4 students is an overcount.
- Option B: 3 students incorrectly includes Charu who scored exactly 75.
- Option C: 1 student is an undercount.
- Option D: Correct — 2 students (Anil and Dev).

**Final Answer:** 2 students scored above 75 in English  $\Rightarrow$  D

**Answer:** (D) [Go Back to Q20](#)

**Q21.**

### Solution

**Concept — Range from Table:** Range = Maximum total – Minimum total (from the totals column in the table in the Directions).

**Step 1 — Identify extremes:** Highest total = Dev = 330. Lowest total = Ela = 250.

**Step 2 — Difference:**  $330 - 250 = 80$ .

**Why other options are wrong:**

- Option A: Correct — difference = 80.
- Option B: 70 would result from  $320 - 250$  or  $330 - 260$ .
- Option C: 60 does not match any pair of extremes.
- Option D: 85 is greater than the actual difference of 80.



**Final Answer:** Difference between highest and lowest totals = 80  $\Rightarrow$  **A**

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

**Q22.**

### Solution

**Concept — LCM (Least Common Multiple):** The LCM is the smallest number divisible by all given numbers. Use prime factorisation to find it.

**Step 1 — Prime factorisations:**  $12 = 2^2 \times 3$ ;  $18 = 2 \times 3^2$ ;  $24 = 2^3 \times 3$ ;  $36 = 2^2 \times 3^2$ .

**Step 2 — LCM:** Take highest powers:  $2^3 \times 3^2 = 8 \times 9 = 72$ .

**Step 3 — Verify:**  $72 \div 12 = 6$ ,  $72 \div 18 = 4$ ,  $72 \div 24 = 3$ ,  $72 \div 36 = 2$ . All exact. ✓

**Why other options are wrong:**

- Option A: 36 is not divisible by 24 ( $36 \div 24 = 1.5$ ).
- Option B: Correct — 72.
- Option C: 144 is a common multiple but not the least.
- Option D: 108 is not divisible by 24 ( $108 \div 24 = 4.5$ ).

**Final Answer:** LCM of 12, 18, 24, 36 = 72  $\Rightarrow$  **B**

**Answer: (B)** [Go Back to Q22](#)

**Q23.**

### Solution

**Concept — HCF (Highest Common Factor):** HCF is the largest number that divides both numbers exactly. Use the Euclidean algorithm or prime factorisation.

**Step 1 — Prime factorisations:**  $144 = 2^4 \times 3^2$ ;  $108 = 2^2 \times 3^3$ .

**Step 2 — HCF:** Take lowest powers of common primes:  $2^2 \times 3^2 = 4 \times 9 = 36$ .

**Step 3 — Verify:**  $144 \div 36 = 4$ ,  $108 \div 36 = 3$ . Both exact. ✓

**Why other options are wrong:**

- Option A: 18 divides both, but is not the highest ( $36 > 18$ ).
- Option B: 24 does not divide 108 exactly ( $108 \div 24 = 4.5$ ).
- Option C: Correct — 36.



- Option D: 48 does not divide 144 exactly ( $144 \div 48 = 3$ ) but does not divide 108 ( $108 \div 48 = 2.25$ ).

**Final Answer:** HCF of 144 and 108 = 36  $\Rightarrow$  C

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

**Q24.**

### Solution

**Concept — Chinese Remainder Theorem (Simultaneous Remainders):** Find numbers of the form  $5k + 3$  and check divisibility by 7 with remainder 4.

**Step 1 — List numbers  $\equiv 3 \pmod{5}$ :** 3, 8, 13, 18, 23, 28, 33, ...

**Step 2 — Check remainder when divided by 7:**

- $3 \div 7$ : remainder 3. No.
- $8 \div 7$ : remainder 1. No.
- $13 \div 7$ : remainder 6. No.
- $18 \div 7$ : remainder 4. **Yes!**

**Step 3 — Confirm:**  $18 = 5 \times 3 + 3$  (remainder 3 when  $\div 5$ ) and  $18 = 7 \times 2 + 4$  (remainder 4 when  $\div 7$ ). ✓

**Why other options are wrong:**

- Option A:  $13 \div 5 = 2 \text{ rem } 3$  ✓ but  $13 \div 7 = 1 \text{ rem } 6$  ✗.
- Option B:  $33 \div 5 = 6 \text{ rem } 3$  ✓ but  $33 \div 7 = 4 \text{ rem } 5$  ✗.
- Option C:  $28 \div 5 = 5 \text{ rem } 3$  ✓ but  $28 \div 7 = 4 \text{ rem } 0$  ✗.
- Option D: Correct — 18.

**Final Answer:** Smallest number = 18  $\Rightarrow$  D

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



Q25.

**Solution**

**Concept — Divisibility by LCM:** Numbers divisible by both 3 and 7 are divisible by  $\text{LCM}(3, 7) = 21$ .

**Step 1 — Find multiples of 21 from 1 to 100:** 21, 42, 63, 84. (Next would be 105, which exceeds 100.)

**Step 2 — Count:** There are 4 such numbers.

**Why other options are wrong:**

- Option A: Correct — 4 multiples (21, 42, 63, 84).
- Option B: 5 would require 105 to be  $\leq 100$ , which it is not.
- Option C: 3 is an undercount.
- Option D: 6 is an overcount.

**Final Answer:** 4 integers between 1 and 100 are divisible by both 3 and 7  $\Rightarrow$  **A**

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

Q26.

**Solution**

**Concept — Sets and Venn Diagram:**  $n(M \cup S) = n(M) + n(S) - n(M \cap S)$ .  
Students studying neither = Total  $- n(M \cup S)$ .

**Step 1 — Find students in at least one subject:**  $n(M \cup S) = 35 + 28 - 15 = 48$ .

**Step 2 — Find students in neither:**  $60 - 48 = 12$ .

**Why other options are wrong:**

- Option A: 10 would mean  $n(M \cup S) = 50$ , but  $35 + 28 - 15 = 48 \neq 50$ .
- Option B: Correct — 12.
- Option C: 8 would mean  $n(M \cup S) = 52$ , which exceeds 48.
- Option D: 14 would mean  $n(M \cup S) = 46$ , implying  $n(M \cap S) = 17 \neq 15$ .

**Final Answer:** Students studying neither subject = 12  $\Rightarrow$  **B**

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



Q27.

**Solution**

**Concept — Factorisation of Quadratic:** For  $ax^2 + bx + c = 0$ , find two numbers whose product =  $c$  and sum =  $-b$ .

**Step 1 — Find factor pair:** Need two numbers with product = 6 and sum = 5. These are 2 and 3.

**Step 2 — Factorise:**  $x^2 - 5x + 6 = (x - 2)(x - 3) = 0$ .

**Step 3 — Roots:**  $x = 2$  or  $x = 3$ .

**Why other options are wrong:**

- Option A: 1 and 6: product = 6 but sum = 7  $\neq$  5.
- Option B: 1 and 5: product = 5  $\neq$  6.
- Option C: Correct — 2 and 3.
- Option D: 3 and 4: product = 12  $\neq$  6.

**Final Answer:** Roots are 2 and 3  $\Rightarrow$  **C**

**Answer: (C)** [Go Back to Q27](#)

Q28.

**Solution**

**Concept — Algebraic Identity:**  $\left(x + \frac{1}{x}\right)^2 = x^2 + 2 + \frac{1}{x^2}$ , so  $x^2 + \frac{1}{x^2} = \left(x + \frac{1}{x}\right)^2 - 2$ .

**Step 1 — Square both sides:**  $\left(x + \frac{1}{x}\right)^2 = 5^2 = 25$ .

**Step 2 — Apply identity:**  $x^2 + \frac{1}{x^2} = 25 - 2 = 23$ .

**Why other options are wrong:**

- Option A: 21 would require subtracting 4 instead of 2.
- Option B: 24 adds instead of subtracts:  $25 - 1 \neq 24$ .
- Option C: 25 is  $\left(x + \frac{1}{x}\right)^2$ , not  $x^2 + \frac{1}{x^2}$ .
- Option D: Correct — 23.

**Final Answer:**  $x^2 + \frac{1}{x^2} = 23 \Rightarrow$  **D**

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



Q29.

**Solution**

**Concept — Sum of AP:**  $S_n = \frac{n}{2} [2a + (n - 1)d]$ , where  $a$  = first term,  $d$  = common difference,  $n$  = number of terms.

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

**Step 2 — Compute sum:**  $S_{20} = \frac{20}{2} [2(3) + 19(4)] = 10 [6 + 76] = 10 \times 82 = 820$ .

**Why other options are wrong:**

- Option A: Correct — 820.
- Option B: 800 would arise from  $10 \times [6 + 74] = 800$ , i.e., using  $n = 19$ .
- Option C: 840 would arise from  $10 \times 84$ , which requires  $d = \frac{78}{19}$ .
- Option D: 760 would require a smaller common difference.

**Final Answer:** Sum of first 20 terms = 820  $\Rightarrow$  **A**

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

Q30.

**Solution**

**Concept — Ratio and Sum:** If two numbers are in ratio  $m : n$ , each part =  $\frac{\text{Sum} \times \text{ratio part}}{\text{sum of ratio}}$ .

**Step 1 — Find each part:** Sum of ratio =  $3+4 = 7$ . Larger number =  $\frac{84 \times 4}{7} = 48$ .

**Step 2 — Verify:** Smaller =  $\frac{84 \times 3}{7} = 36$ . Sum =  $36 + 48 = 84$ . Ratio =  $36 : 48 = 3 : 4$ . ✓

**Why other options are wrong:**

- Option A: 36 is the smaller number, not the larger.
- Option B: Correct — 48.
- Option C: 42 would be the larger if ratio were 1:1 (equal split).
- Option D: 54 would require a ratio of 3 : 4 with sum = 63, not 84.

**Final Answer:** Larger number = 48  $\Rightarrow$  **B**

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



Q31.

**Solution**

**Concept — Ratio Division:**  $C\text{'s share} = \frac{C\text{'s ratio part}}{\text{sum of all ratio parts}} \times \text{Total amount.}$

**Step 1 — Sum of ratio:**  $2 + 3 + 4 = 9.$

**Step 2 — C's share:**  $\frac{4}{9} \times 1800 = \frac{7200}{9} = \text{Rs. } 800.$

**Why other options are wrong:**

- Option A:  $\text{Rs. } 400 = \frac{2}{9} \times 1800$ , which is A's share.
- Option B:  $\text{Rs. } 600 = \frac{3}{9} \times 1800$ , which is B's share.
- Option C: Correct — Rs. 800.
- Option D: Rs. 1,000 exceeds C's entitled share.

**Final Answer:** C's share = Rs. 800  $\Rightarrow$  **C**

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

Q32.

**Solution**

**Concept — Alligation Rule:** Ratio in which two ingredients at prices  $c_1$  and  $c_2$  are mixed to get mean price  $m$ : ratio =  $(m - c_2) : (c_1 - m).$

**Step 1 — Identify values:** Milk =  $c_1 = 40$ , Water =  $c_2 = 0$ , Mean =  $m = 32.$

**Step 2 — Apply alligation:** Ratio of milk to water =  $(32 - 0) : (40 - 32) = 32 : 8 = 4 : 1.$

**Step 3 — Restate as water to milk:** Water : Milk = 1 : 4.

**Why other options are wrong:**

- Option A: 3:5 gives mean price =  $\frac{3 \times 0 + 5 \times 40}{8} = 25 \neq 32.$
- Option B: 5:3 gives mean =  $\frac{5 \times 0 + 3 \times 40}{8} = 15 \neq 32.$
- Option C: 3:4 gives mean =  $\frac{0 \times 3 + 40 \times 4}{7} \approx 22.9 \neq 32.$
- Option D: Correct — 1:4 (water:milk) gives mean =  $\frac{0 + 160}{5} = 32. \checkmark$

**Final Answer:** Water and milk should be mixed in ratio 1 : 4  $\Rightarrow$  **D**

**Answer: (D)** [Go Back to Q32](#)



Q33.

**Solution**

**Concept — Partnership Profit Sharing:** Profit is distributed in proportion to each partner's investment (assuming equal time).

**Step 1 — Investment ratio:**  $A : B : C = 12000 : 15000 : 18000 = 4 : 5 : 6$ .

**Step 2 — Total ratio parts:**  $4 + 5 + 6 = 15$ .

**Step 3 — B's share:**  $\frac{5}{15} \times 18000 = \frac{1}{3} \times 18000 = \text{Rs. } 6,000$ .

**Why other options are wrong:**

- Option A: Correct — Rs. 6,000.
- Option B: Rs. 4,500 =  $\frac{4}{16} \times 18000$ , using wrong ratio sum.
- Option C: Rs. 7,200 =  $\frac{6}{15} \times 18000$ , which is C's share.
- Option D: Rs. 5,400 =  $\frac{4}{15} \times 18000 \approx 4800$ ;  $\frac{5400}{18000} = 30\%$  but B's share is exactly  $\frac{1}{3} = 33.3\%$ .

**Final Answer:** B's share of profit = Rs. 6,000  $\Rightarrow$  **A**

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

Q34.

**Solution**

**Concept — Ages in Ratio:** Let present ages be  $4x$  and  $5x$ . After 5 years they become  $4x + 5$  and  $5x + 5$ ; the new ratio is  $5 : 6$ .

**Step 1 — Set up equation:**  $\frac{4x + 5}{5x + 5} = \frac{5}{6}$ .

**Step 2 — Cross multiply:**  $6(4x + 5) = 5(5x + 5) \Rightarrow 24x + 30 = 25x + 25 \Rightarrow x = 5$ .

**Step 3 — A's age:**  $4x = 4 \times 5 = 20$  years.

**Why other options are wrong:**

- Option A: 15 years would give  $x = 3.75$ , which does not satisfy the ratio condition.
- Option B: Correct — 20 years ( $x = 5$ ).
- Option C: 25 years would give  $x = 6.25$ ; B's age = 31.25 years; after 5 years  $30 : 36.25 \neq 5 : 6$ .
- Option D: 18 years gives  $x = 4.5$ ; ratio after 5 years =  $23 : 27.5 \neq 5 : 6$ .

**Final Answer:** A's present age = 20 years  $\Rightarrow$  **B**



**Answer: (B)** [Go Back to Q34](#)

**Q35.**

**Solution**

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

**Step 1 — Substitute values:**  $\text{Area} = \frac{22}{7} \times 7^2 = \frac{22}{7} \times 49 = 22 \times 7 = 154 \text{ cm}^2$ .

**Why other options are wrong:**

- Option A:  $44 \text{ cm}^2$  is the circumference ( $2\pi r = 2 \times \frac{22}{7} \times 7 = 44$ ), not the area.
- Option B:  $132 \text{ cm}^2$  does not correspond to any standard formula for  $r = 7$ .
- Option C: Correct —  $154 \text{ cm}^2$ .
- Option D:  $176 \text{ cm}^2$  would require  $r \approx 7.48 \text{ cm}$ .

**Final Answer:** Area of circle =  $154 \text{ cm}^2 \Rightarrow \boxed{\text{C}}$

**Answer: (C)** [Go Back to Q35](#)

**Q36.**

**Solution**

**Concept — Pythagoras Theorem:** In a right-angled triangle,  $\text{hypotenuse}^2 = \text{sum of squares of the two legs}$ .

**Step 1 — Apply theorem:**  $h^2 = 6^2 + 8^2 = 36 + 64 = 100$ .

**Step 2 — Find hypotenuse:**  $h = \sqrt{100} = 10 \text{ cm}$ .

**Step 3 — Note:** This is the classic 3-4-5 Pythagorean triple scaled by 2 ( $6 = 2 \times 3$ ,  $8 = 2 \times 4$ ,  $10 = 2 \times 5$ ).

**Why other options are wrong:**

- Option A: 12 cm would give  $h^2 = 144 \neq 100$ .
- Option B: 14 cm would give  $h^2 = 196 \neq 100$ .
- Option C: 9 cm would give  $h^2 = 81 \neq 100$ .
- Option D: Correct — 10 cm.

**Final Answer:** Hypotenuse = 10 cm  $\Rightarrow \boxed{\text{D}}$

**Answer: (D)** [Go Back to Q36](#)



Q37.

**Solution**

**Concept — Volume of Cylinder:**  $V = \pi r^2 h$ .

**Step 1 — Substitute values:**  $V = \frac{22}{7} \times 7^2 \times 10 = \frac{22}{7} \times 49 \times 10 = 22 \times 7 \times 10 = 1540 \text{ cm}^3$ .

**Why other options are wrong:**

- Option A: Correct —  $1540 \text{ cm}^3$ .
- Option B:  $1320 \text{ cm}^3$  corresponds to  $V = \frac{22}{7} \times 6^2 \times \frac{22}{3}$ , not these dimensions.
- Option C:  $1760 \text{ cm}^3$  would require  $r = 7, h \approx 11.43 \text{ cm}$ .
- Option D:  $2200 \text{ cm}^3$  would require  $h \approx 14.3 \text{ cm}$  for  $r = 7$ .

**Final Answer:** Volume of cylinder =  $1540 \text{ cm}^3 \Rightarrow \boxed{\text{A}}$

**Answer: (A)** [Go Back to Q37](#)

Q38.

**Solution**

**Concept — Permutations of Distinct Letters:** The number of arrangements of  $n$  distinct objects =  $n!$ .

**Step 1 — Check for repeated letters:** “MASTER” has 6 letters: M, A, S, T, E, R — all distinct.

**Step 2 — Count arrangements:**  $6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$ .

**Why other options are wrong:**

- Option A:  $360 = \frac{6!}{2}$ , which would apply if one letter repeated twice.
- Option B: Correct — 720.
- Option C:  $120 = 5!$ , the arrangements of only 5 letters.
- Option D:  $1440 = 2 \times 6!$  has no standard interpretation for this problem.

**Final Answer:** Number of arrangements of MASTER =  $720 \Rightarrow \boxed{\text{B}}$

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



Q39.

**Solution**

**Concept — Complementary Probability:**  $P(\text{not red}) = 1 - P(\text{red}) = \frac{\text{Non-red balls}}{\text{Total balls}}$ .

**Step 1 — Total balls:**  $5 + 3 + 2 = 10$ .

**Step 2 — Non-red balls:**  $3 + 2 = 5$  (blue + green).

**Step 3 — Probability:**  $P(\text{not red}) = \frac{5}{10} = \frac{1}{2}$ .

**Why other options are wrong:**

- Option A:  $\frac{3}{10}$  is the probability of drawing a blue ball only.
- Option B:  $\frac{2}{5} = \frac{4}{10}$  does not match non-red count of 5.
- Option C: Correct —  $\frac{1}{2}$ .
- Option D:  $\frac{3}{5} = \frac{6}{10}$  would require 6 non-red balls, but there are only 5.

**Final Answer:**  $P(\text{not red}) = \frac{1}{2} \Rightarrow \boxed{\text{C}}$

**Answer: (C)** [Go Back to Q39](#)

Q40.

**Solution**

**Concept — Arithmetic Mean:**  $\text{Mean} = \frac{\text{Sum of all observations}}{\text{Number of observations}}$ .

**Step 1 — Sum the data:**  $15 + 22 + 18 + 27 + 31 + 14 + 19 + 24$ .

- $15 + 22 = 37$
- $37 + 18 = 55$
- $55 + 27 = 82$
- $82 + 31 = 113$
- $113 + 14 = 127$
- $127 + 19 = 146$
- $146 + 24 = 170$

Sum = 170.

**Step 2 — Compute mean:**  $\text{Mean} = \frac{170}{8} = 21.25$ .

**Why other options are wrong:**



- Option A: 20 would require sum =  $160 \neq 170$ .
- Option B: 20.5 would require sum =  $164 \neq 170$ .
- Option C: 21 would require sum =  $168 \neq 170$ .
- Option D: Correct — 21.25 (sum = 170,  $170 \div 8 = 21.25$ ).

**Final Answer:** Arithmetic mean = 21.25  $\Rightarrow$  D

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



## Answer Key

| Q  | Ans | Q  | Ans | Q  | Ans | Q  | Ans | Q  | Ans |
|----|-----|----|-----|----|-----|----|-----|----|-----|
| 1  | A   | 2  | B   | 3  | C   | 4  | D   | 5  | A   |
| 6  | B   | 7  | C   | 8  | D   | 9  | A   | 10 | B   |
| 11 | C   | 12 | D   | 13 | A   | 14 | B   | 15 | C   |
| 16 | D   | 17 | A   | 18 | B   | 19 | C   | 20 | D   |
| 21 | A   | 22 | B   | 23 | C   | 24 | D   | 25 | A   |
| 26 | B   | 27 | C   | 28 | D   | 29 | A   | 30 | B   |
| 31 | C   | 32 | D   | 33 | A   | 34 | B   | 35 | C   |
| 36 | D   | 37 | A   | 38 | B   | 39 | C   | 40 | D   |

