

SNAP Quantitative, Data Interpretation and Data Sufficiency

Sample Paper – 9

Duration: 20 Minutes

Maximum Marks: 20

Instructions

- This paper contains **20** Multiple Choice Questions (Single Correct Answer), modelled on the Quantitative, Data Interpretation and Data Sufficiency section of **SNAP** (Symbiosis National Aptitude Test).
- Each correct answer carries **+1 mark**. **0.25 marks** are deducted for every wrong answer. Unattempted questions carry no penalty.
- Only **one** option is correct. Choose the most appropriate answer.
- SNAP is a computer-based test with no sectional time limit; attempt this practice paper in one timed sitting of about **20 minutes**.
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Part A: Arithmetic

- Q1.** The price of an article is first increased by 20% and then decreased by 20%. What is the net percentage change in the price?
- (A) No change
(B) 4% increase
(C) 2% decrease
(D) 4% decrease
- Q2.** A shopkeeper sells an article at a loss of 10%. Had he sold it for Rs. 90 more, he would have made a profit of 5%. What is the cost price of the article?
- (A) Rs. 500



- (B) Rs. 550
- (C) Rs. 600
- (D) Rs. 650

Q3. If 8 men can complete a piece of work in 12 days, how many days will 6 men take to complete the same work?

- (A) 16
- (B) 18
- (C) 14
- (D) 20

Q4. A mixture of 40 litres contains milk and water in the ratio 3 : 1. How much water (in litres) must be added so that the ratio of milk to water becomes 3 : 2?

- (A) 8
- (B) 10
- (C) 12
- (D) 15

Q5. The average age of a class of 24 students is 15 years. When the teacher's age is included, the average increases by 1 year. What is the teacher's age (in years)?

- (A) 40
- (B) 39
- (C) 41
- (D) 38

Q6. A train runs at a uniform speed of 54 km/h. How many metres does it cover in 20 seconds?

- (A) 270



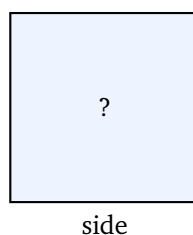
- (B) 250
- (C) 280
- (D) 300

Part B: Algebra and Number System

- Q7.** If $a + b = 7$ and $ab = 12$, what is the value of $a^2 + b^2$?
- (A) 20
 - (B) 23
 - (C) 25
 - (D) 27
- Q8.** The sum of two numbers is 25 and their difference is 7. What is the product of the two numbers?
- (A) 136
 - (B) 144
 - (C) 150
 - (D) 120
- Q9.** Solve for x : $\frac{x}{3} + \frac{x}{4} = 7$.
- (A) 6
 - (B) 9
 - (C) 12
 - (D) 14

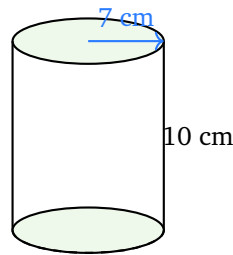
Part C: Geometry and Mensuration

- Q10.** The perimeter of the square shown below is 36 cm. Find its area.



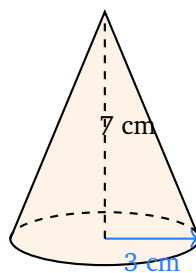
- (A) 72 sq. cm
- (B) 64 sq. cm
- (C) 81 sq. cm
- (D) 90 sq. cm

Q11. Find the volume of the cylinder shown below, with radius 7 cm and height 10 cm. (Take $\pi = \frac{22}{7}$.)



- (A) 1540 cu. cm
- (B) 1450 cu. cm
- (C) 1600 cu. cm
- (D) 1400 cu. cm

Q12. Find the volume of the cone shown below, with base radius 3 cm and height 7 cm. (Take $\pi = \frac{22}{7}$.)

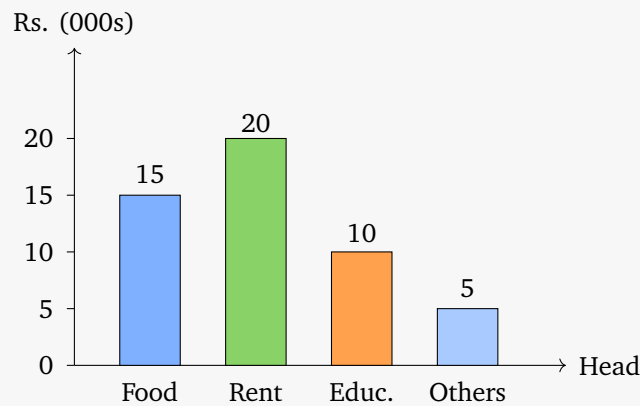


- (A) 88 cu. cm
- (B) 66 cu. cm
- (C) 99 cu. cm
- (D) 44 cu. cm

Part D: Data Interpretation



Directions (Q13–Q16): The bar chart below shows a family's monthly expenditure (in Rs. thousand) across four heads. Study it and answer the questions that follow.



Q13. On which head does the family spend the most each month?

- (A) Rent
- (B) Food
- (C) Education
- (D) Others

Q14. What is the family's total monthly expenditure (in Rs. thousand)?

- (A) 45
- (B) 55
- (C) 48
- (D) 50

Q15. What percentage of the total monthly expenditure is spent on Food?

- (A) 20%
- (B) 25%
- (C) 40%
- (D) 30%

Q16. What is the ratio of the expenditure on Education to that on Others?



- (A) 1 : 2
- (B) 2 : 1
- (C) 3 : 1
- (D) 1 : 1

Part E: Data Sufficiency

Directions (Q17–Q20): Each question is followed by two statements, I and II. Decide whether the statements are sufficient to answer the question, and mark:

- (A) if Statement I alone is sufficient but Statement II alone is not;
- (B) if Statement II alone is sufficient but Statement I alone is not;
- (C) if both statements together are sufficient but neither alone is;
- (D) if either statement alone is sufficient.

Q17. What is the value of the number x ?

- I. $3x = 21$.
 - II. x is a positive integer less than 10.
- (A) Statement I alone is sufficient
 - (B) Statement II alone is sufficient
 - (C) Both statements together are needed
 - (D) Either statement alone is sufficient

Q18. What is the total cost of one pen and one pencil together?

- I. Two pens and three pencils together cost Rs. 18.
 - II. Three pens and two pencils together cost Rs. 22.
- (A) Statement I alone is sufficient
 - (B) Statement II alone is sufficient
 - (C) Both statements together are needed
 - (D) Either statement alone is sufficient



Q19. What is the area of a rectangle?

I. The length of the rectangle is 12 cm.

II. The length is twice the breadth and the perimeter is 36 cm.

(A) Statement I alone is sufficient

(B) Statement II alone is sufficient

(C) Both statements together are needed

(D) Either statement alone is sufficient

Q20. What is the value of y ?

I. $y - 4 = 6$.

II. $\frac{y}{2} = 5$.

(A) Statement I alone is sufficient

(B) Statement II alone is sufficient

(C) Both statements together are needed

(D) Either statement alone is sufficient



Detailed Solutions**Q1.****Solution**

Concept — Successive percentage change: Apply each change one after the other on a convenient starting value.

Step 1: Let the original price be Rs. 100.

Step 2: A 20% increase gives $100 + 20 = \text{Rs. } 120$.

Step 3: A 20% decrease on Rs. 120 is $0.20 \times 120 = \text{Rs. } 24$.

Step 4: New price $= 120 - 24 = \text{Rs. } 96$.

Step 5: Change $= 96 - 100 = -4$, so the price falls by 4%.

Why other options are wrong:

- Option A: No change assumes the two 20% moves cancel, but the decrease acts on a larger amount.
- Option B: 4% increase has the direction backwards.
- Option C: 2% decrease uses a wrong base for one of the steps.

Final Answer: The price decreases by 4% $\Rightarrow$ **D**

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

Q2.**Solution**

Concept — Cost price from a loss and a gain: The difference between the two selling prices equals the difference between the two percentages of the cost price.

Step 1: Let the cost price be C . Selling at a 10% loss gives $0.90 C$.

Step 2: Selling at a 5% profit gives $1.05 C$.

Step 3: The difference is $1.05 C - 0.90 C = 0.15 C$, and this equals Rs. 90.

Step 4: So $0.15 C = 90$, which gives $C = \frac{90}{0.15} = \text{Rs. } 600$.

Why other options are wrong:

- Option A: Rs. 500 gives a difference of only Rs. 75.
- Option B: Rs. 550 gives a difference of Rs. 82.50.



- Option D: Rs. 650 gives a difference of Rs. 97.50.

Final Answer: The cost price is Rs. 600 $\Rightarrow$ C

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

Q3.

Solution

Concept — Men and days (inverse variation): With the same work, men $\times$ days stays constant.

Step 1: Total work = 8 men $\times$ 12 days = 96 man-days.

Step 2: With 6 men, days = $\frac{96}{6} = 16$ days.

Why other options are wrong:

- Option B: 18 days does not keep the product at 96.
- Option C: 14 days gives only $6 \times 14 = 84$ man-days.
- Option D: 20 days gives $6 \times 20 = 120$ man-days, too much.

Final Answer: 6 men take 16 days $\Rightarrow$ A

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

Q4.

Solution

Concept — Mixtures: Adding water changes only the water quantity; the milk stays the same.

Step 1: In 40 litres with ratio 3 : 1, milk = $\frac{3}{4} \times 40 = 30$ litres and water = $\frac{1}{4} \times 40 = 10$ litres.

Step 2: We want milk : water = 3 : 2 with milk still 30 litres, so water must be $\frac{2}{3} \times 30 = 20$ litres.

Step 3: Water to add = $20 - 10 = 10$ litres.

Why other options are wrong:

- Option A: 8 litres gives water 18 and a ratio of 30 : 18, not 3 : 2.
- Option C: 12 litres gives water 22 and overshoots the target.
- Option D: 15 litres gives water 25, well past 3 : 2.



Final Answer: Add 10 litres of water $\Rightarrow$ **B**

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

Q5.

Solution

Concept — Average change on adding a member: Use total = average $\times$ count before and after.

Step 1: Sum of the 24 students' ages = $15 \times 24 = 360$ years.

Step 2: With the teacher added there are 25 people and the average is $15 + 1 = 16$, so the new total = $16 \times 25 = 400$ years.

Step 3: Teacher's age = $400 - 360 = 40$ years.

Why other options are wrong:

- Option B: 39 years would leave the new total at 399.
- Option C: 41 years would push the new total to 401.
- Option D: 38 years is too low to raise the average by a full year.

Final Answer: The teacher is 40 years old $\Rightarrow$ **A**

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

Q6.

Solution

Concept — Speed and distance: Convert km/h to m/s, then multiply by the time.

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

Step 2: Distance = speed $\times$ time = $15 \times 20 = 300$ metres.

Why other options are wrong:

- Option A: 270 m uses a speed of 13.5 m/s.
- Option B: 250 m uses a wrong conversion.
- Option C: 280 m does not match 15 m/s over 20 s.

Final Answer: The train covers 300 metres $\Rightarrow$ **D**

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



Q7.

Solution**Concept — Algebraic identity:** $a^2 + b^2 = (a + b)^2 - 2ab$.**Step 1:** We are given $a + b = 7$ and $ab = 12$.**Step 2:** Square the sum: $(a + b)^2 = 7^2 = 49$.**Step 3:** Subtract $2ab$: $a^2 + b^2 = 49 - 2 \times 12 = 49 - 24 = 25$.**Why other options are wrong:**

- Option A: 20 subtracts $2ab$ twice.
- Option B: 23 uses $ab = 13$.
- Option D: 27 subtracts only ab , not $2ab$.

Final Answer: The value is 25 $\Rightarrow$ **Answer: (C)** [Go Back to Q7](#)

Q8.

Solution**Concept — Sum and difference:** Find the two numbers from their sum and difference, then multiply.**Step 1:** Let the numbers be p and q with $p + q = 25$ and $p - q = 7$.**Step 2:** Add the equations: $2p = 32$, so $p = 16$.**Step 3:** Then $q = 25 - 16 = 9$.**Step 4:** Product = $16 \times 9 = 144$.**Why other options are wrong:**

- Option A: 136 comes from a wrong pair of numbers.
- Option C: 150 does not factor into two numbers with this sum and difference.
- Option D: 120 uses numbers 15 and 8, whose difference is not 7.

Final Answer: The product is 144 $\Rightarrow$ **Answer: (B)** [Go Back to Q8](#)

Q9.

Solution

Concept — Linear equation with fractions: Combine the fractions over a common denominator, then solve.

Step 1: $\frac{x}{3} + \frac{x}{4} = \frac{4x + 3x}{12} = \frac{7x}{12}$.

Step 2: So $\frac{7x}{12} = 7$.

Step 3: Multiply both sides by 12: $7x = 84$.

Step 4: Divide by 7: $x = 12$.

Why other options are wrong:

- Option A: 6 gives $\frac{7 \times 6}{12} = 3.5$, not 7.
- Option B: 9 gives $\frac{63}{12} = 5.25$.
- Option D: 14 gives $\frac{98}{12} \approx 8.17$.

Final Answer: $x = 12 \Rightarrow \boxed{C}$

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

Q10.

Solution

Concept — Square from its perimeter: Perimeter = $4 \times \text{side}$, and area = side^2 .

Step 1: Side = $\frac{\text{perimeter}}{4} = \frac{36}{4} = 9$ cm.

Step 2: Area = $9^2 = 81$ sq. cm.

Why other options are wrong:

- Option A: 72 sq. cm does not come from a whole-number side.
- Option B: 64 sq. cm is the area of a square of side 8 cm.
- Option D: 90 sq. cm is not a perfect square area here.

Final Answer: The area is 81 sq. cm $\Rightarrow \boxed{C}$

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



Q11.

Solution**Concept — Volume of a cylinder:** $\text{Volume} = \pi r^2 h$.**Step 1:** Here $r = 7$ cm and $h = 10$ cm.**Step 2:** $r^2 = 7^2 = 49$.**Step 3:** $\text{Volume} = \frac{22}{7} \times 49 \times 10 = 22 \times 7 \times 10 = 1540$ cu. cm.**Why other options are wrong:**

- Option B: 1450 cu. cm rounds the arithmetic incorrectly.
- Option C: 1600 cu. cm overstates the product.
- Option D: 1400 cu. cm drops part of the calculation.

Final Answer: The volume is 1540 cu. cm $\Rightarrow$ **A****Answer: (A)** [Go Back to Q11](#)

Q12.

Solution**Concept — Volume of a cone:** $\text{Volume} = \frac{1}{3} \pi r^2 h$.**Step 1:** Here $r = 3$ cm and $h = 7$ cm.**Step 2:** $r^2 = 3^2 = 9$.**Step 3:** $\text{Volume} = \frac{1}{3} \times \frac{22}{7} \times 9 \times 7 = \frac{1}{3} \times 22 \times 9 = \frac{1}{3} \times 198 = 66$ cu. cm.**Why other options are wrong:**

- Option A: 88 cu. cm uses a wrong radius or height.
- Option C: 99 cu. cm forgets the factor of one-third partly.
- Option D: 44 cu. cm undercounts the volume.

Final Answer: The volume is 66 cu. cm $\Rightarrow$ **B****Answer: (B)** [Go Back to Q12](#)

Q13.

Solution

Concept — Reading a bar chart: The tallest bar marks the largest amount.

Step 1: The values are Food = 15, Rent = 20, Education = 10, Others = 5 (Rs. thousand).

Step 2: The largest value, 20, belongs to Rent.

Why other options are wrong:

- Option B: Food is Rs. 15 thousand, second highest.
- Option C: Education is only Rs. 10 thousand.
- Option D: Others is the smallest at Rs. 5 thousand.

Final Answer: The most is spent on Rent $\Rightarrow$ **A**

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

Q14.

Solution

Concept — Total from a chart: Add the values of all the bars.

Step 1: Total = 15 + 20 + 10 + 5.

Step 2: 15 + 20 = 35; 35 + 10 = 45; 45 + 5 = 50 (Rs. thousand).

Why other options are wrong:

- Option A: 45 leaves out the Others bar.
- Option B: 55 overcounts by 5.
- Option C: 48 misreads one of the bars.

Final Answer: The total is Rs. 50 thousand $\Rightarrow$ **D**

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



Q15.

Solution

Concept — Percentage of a total: $\text{Percentage} = \frac{\text{part}}{\text{total}} \times 100$.

Step 1: Food = 15 and the total = 50 (from Q14).

Step 2: $\text{Percentage} = \frac{15}{50} \times 100 = 30\%$.

Why other options are wrong:

- Option A: 20% uses a part of 10, not 15.
- Option B: 25% uses a total of 60.
- Option C: 40% uses a part of 20.

Final Answer: Food is 30% of the total $\Rightarrow$ **D**

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

Q16.

Solution

Concept — Ratio: Write the two amounts and reduce the ratio to lowest terms.

Step 1: Education = 10 and Others = 5.

Step 2: Ratio = 10 : 5 = 2 : 1.

Why other options are wrong:

- Option A: 1 : 2 reverses the two amounts.
- Option C: 3 : 1 does not match 10 and 5.
- Option D: 1 : 1 would need the two amounts to be equal.

Final Answer: The ratio is 2 : 1 $\Rightarrow$ **B**

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

Q17.

Solution

Concept — Data sufficiency: Test each statement on its own to see if it fixes a single value.

Statement I: “ $3x = 21$ ” gives $x = 7$ directly, a unique value. So I alone is sufficient.



Statement II: “ x is a positive integer less than 10” allows 1, 2, 3, ..., 9, so it does not give a unique value. II alone is not sufficient.

Conclusion: Statement I alone is sufficient but Statement II alone is not.

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

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

Q18.

Solution

Concept — Data sufficiency: One equation in two unknowns cannot fix both prices; two independent equations can.

Statement I: “ $2p + 3q = 18$ ” is a single equation in two unknowns, so it cannot give $p + q$ on its own. I alone is not sufficient.

Statement II: “ $3p + 2q = 22$ ” is again one equation in two unknowns. II alone is not sufficient.

Both together: Add the two equations: $(2p + 3q) + (3p + 2q) = 18 + 22$, giving $5p + 5q = 40$, so $p + q = 8$. A unique value results only when both are used.

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

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

Q19.

Solution

Concept — Data sufficiency: The area needs both length and breadth; check whether a statement fixes both.

Statement I: “Length is 12 cm” gives only one side, so the area cannot be found. I alone is not sufficient.

Statement II: “Length is twice the breadth and the perimeter is 36 cm” gives $l = 2b$ and $2(l + b) = 36$, so $l + b = 18$, giving $3b = 18$, $b = 6$ and $l = 12$. Then area $= 12 \times 6 = 72$ sq. cm. II alone is sufficient.

Conclusion: Statement II alone is sufficient but Statement I alone is not.

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

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



Q20.

Solution

Concept — Data sufficiency: If each statement alone fixes the value, either one is sufficient.

Statement I: " $y - 4 = 6$ " gives $y = 10$ on its own, so I alone is sufficient.

Statement II: " $\frac{y}{2} = 5$ " gives $y = 10$ on its own, so II alone is sufficient.

Conclusion: Each statement alone gives the same unique value, so either alone is sufficient.

Final Answer: Either statement alone is sufficient $\Rightarrow$ D

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



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	D	2	C	3	A	4	B	5	A
6	D	7	C	8	B	9	C	10	C
11	A	12	B	13	A	14	D	15	D
16	B	17	A	18	C	19	B	20	D

