

MBA PIONEER

Quantitative Aptitude

Data sufficiency 1

DPP:01

Q1 Is the average speed of a car during the entire journey greater than 60 km/h?

1. The car covers the first 100 km at an average speed of 50 km/h.
2. The car covers the remaining 200 km at an average speed of 70 km/h.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q2 Is the speed of the train greater than 90 km/h?

1. The train covers a distance of 270 km in 3 hours.
2. The train covers a distance of 120 km in 1.5 hours.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.

(C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q3 Did John take less than 4 hours to travel from City A to City B?

1. John traveled at an average speed of 80 km/h.
2. The distance between City A and City B is 320 km

(A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.

(C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

- (D) Each statement alone is sufficient to answer the question.

(E) Statements 1 and 2 together are not sufficient to answer the question.

Q4 Is Machine X more efficient than Machine Y?

1. Machine X can complete 3/5 of the job in 4 hours.



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2. Machine Y can complete $\frac{1}{2}$ of another job in 3 hours.
- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Statements 1 and 2 together are not sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q5 Can a group of six men complete a job in 12 days?

1. 18 days are required by six men to do the job.
2. Twelve women can complete half of the job in 6 days.
- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q6 Is Machine R more efficient than Machine S?

1. Machine R can complete $\frac{4}{7}$ of the job in 9 hours.

2. Machine S can complete $\frac{3}{5}$ of the job in 7 hours.
- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q7 Is the average weight of a group of people more than 70 kg?

1. The average weight of the first 8 people is 68 kg.
2. The average weight of all the 12 people in the group, including the first 8, is 72 kg.
- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q8 Is the average score of a team in the last five matches greater than 30?



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1. The sum of the scores in the last five matches is 155.
2. The highest score in these five matches is 45.
- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q9 Is the average of five numbers greater than 20?

1. The sum of two numbers is 29.
2. Three of the numbers are 18, 22, and 25.
- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q10 Did the store make a profit on selling a shirt?

1. The store bought the shirt for \$50 and sold it for \$60.
2. The store offered a discount of 20% on the marked price of the shirt.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q11 What is the percentage discount offered on a shirt?

1. The shirt was bought for \$80 and sold for \$64.
2. The selling price of the shirt is 20% less than the marked price.
- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q12 Did the store incur a loss on selling a watch?

1. The store bought the watch for \$120 and sold it at a 15% discount.
2. The marked price of the watch is \$140.
- (A)



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Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q13 What is the interest rate for an investment that doubles in 10 years?

1. The investment earns simple interest.
2. The investment earns compound interest, compounded annually.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q14 Is the solution in Container A more concentrated than the solution in Container B?

1. Container A contains 4 liters of a 20% sugar solution.
2. Container B contains 6 liters of a 15% sugar solution.

(A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q15 Is the ratio of apples to oranges in a basket greater than 3:4?

1. There are 36 apples in the basket.
2. The number of oranges are 20 more than bananas in the basket.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q16 Does the quadratic equation $ax^2 + bx + c = 0$ have real roots?

1. $a + b + c = 0$.
 2. $a - b + c = 0$.
- (A)



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Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q17 Is one root of the quadratic equation $ax^2 + bx + c = 0$ reciprocal of the other root?

- 1. $b = 3$
- 2. $c = 5, a = 1$

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q18 Does the system of equations $ax + by = c$ and $dx + ey = f$ have a unique solution?

- 1. $a = d$ and $b = e$.
- 2. $c \neq f$.

(A)

Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q19 Is $|x-3| > 5$?

- 1. $x > 8$.
- 2. $0 < x < 3$

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q20 Is $a^3 > b^4$?

- 1. $a > b$.
- 2. $a = 5$ and $b = 3$.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

(B)



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Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.

- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q21 Is $2^{2x} + 3^x > 10$?

- 1. $x > 1$.
- 2. $x < 3$.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q22 Is $\log_{3^x}(81) < 2$?

- 1. $x > 5$.
- 2. $x < 3$.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C)

Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q23 What is the unit digit of $2^{(n+2)}$?

- 1. The unit digit of 2^n is 2.
- 2. n is a multiple of 4.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D) Each statement alone is sufficient to answer the question.
- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q24 When n is divided by 5, what is the remainder?

- 1. n is divisible by 3.
- 2. The remainder when n is divided by 15 is 10.

- (A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.
- (B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.
- (C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.
- (D)



Each statement alone is sufficient to answer the question.

- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q25 What is the HCF of a & b?

1. $a=12, b=18$.
2. The LCM of a & b is 25.

(A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

(B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.

(C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

(D) Each statement alone is sufficient to answer the question.

(E) Statements 1 and 2 together are not sufficient to answer the question.

Q26 In a group of students, are there more female students than male students?

1. The average age of female students is 23.
2. The average age of male students is 25.

(A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

(B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.

(C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

(D) Each statement alone is sufficient to answer the question.

(E)

Statements 1 and 2 together are not sufficient to answer the question.

Q27 In how many ways can 4 students including both boys and girls be chosen from a group of 10 to form a team?

1. The team should have at least 2 boys.
2. The team should not have more than 3 girls.

(A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

(B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.

(C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

(D) Each statement alone is sufficient to answer the question.

(E) Statements 1 and 2 together are not sufficient to answer the question.

Q28 How many different 5-letter words can be formed using the letters of the word "MISSISSIPPI"?

1. The word must start with 'M' and end with 'I'.
2. The letters 'S' & 'P' must be adjacent to each other in the word.

(A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

(B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.

(C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

(D)



Each statement alone is sufficient to answer the question.

- (E) Statements 1 and 2 together are not sufficient to answer the question.

Q29 What is the probability that a randomly selected card from a non-standard deck of 45 playing cards is a face card?

1. There are 12 face cards in the deck.
2. The deck contains 4 suits: hearts, diamonds, clubs, and spades.

(A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

(B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.

(C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

(D) Each statement alone is sufficient to answer the question.

(E) Statements 1 and 2 together are not sufficient to answer the question.

Q30 What is the probability that a randomly selected marble from a bag containing three different coloured marbles is blue?

1. There are 5 red marbles.
2. There are 3 blue and 7 green marbles.

(A) Statement 1 alone is sufficient but Statement 2 alone is not sufficient to answer the question.

(B) Statement 2 alone is sufficient but Statement 1 alone is not sufficient to answer the question.

(C) Both statements together are sufficient to answer the question, but neither statement alone is sufficient.

(D) Each statement alone is sufficient to answer the question.

(E) Statements 1 and 2 together are not sufficient to answer the question.



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Answer Key

Q1 (C)
Q2 (D)
Q3 (C)
Q4 (D)
Q5 (A)
Q6 (C)
Q7 (B)
Q8 (A)
Q9 (E)
Q10 (A)
Q11 (B)
Q12 (C)
Q13 (D)
Q14 (C)
Q15 (E)

Q16 (C)
Q17 (B)
Q18 (A)
Q19 (D)
Q20 (B)
Q21 (E)
Q22 (A)
Q23 (D)
Q24 (B)
Q25 (A)
Q26 (E)
Q27 (E)
Q28 (D)
Q29 (A)
Q30 (C)



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Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Text Solution:

The question is asking whether the average speed of the car for the entire journey is greater than 60 km/h. Statement 1 provides information about the speed for the first 100 km, but it's not sufficient to determine the overall average speed. Statement 2 provides information about the speed for the next 200 km, but it's also not sufficient alone. Combining both statements, we can find the total time taken for the journey and then calculate the average speed. Hence, together, the statements are sufficient.

Video Solution:



Q2 Text Solution:

The question is asking whether the speed of the train is greater than 90 km/h. Statement 1 provides information about the distance and time from which the speed can be calculated, but it's not necessary to evaluate Statement 2. Similarly, statement 2 also provides similar information from which the speed can be calculated. Therefore, either of the statements are sufficient.

Video Solution:



Q3 Text Solution:

The question is asking whether John took less than 4 hours to travel from City A to City B. To find out, we need to calculate the time taken

using both the speed and the distance. Statement 1 provides the speed, but it's not sufficient without the distance. Statement 2 provides the distance, but it's not sufficient without the speed. Combining both statements, we can calculate the time: $\text{Time} = \text{Distance}/\text{Speed} = 320 \text{ km}/80 \text{ km/h} = 4 \text{ hours}$. Since John took exactly 4 hours to travel, he did not take less than 4 hours.

Video Solution:



Q4 Text Solution:

To determine which machine is more efficient, we need to compare the rates of work for both machines. Statement 1 provides the time taken by Machine X to complete $3/5$ of one job, whereas Statement 2 provides the time taken by Machine Y to complete $1/2$ of another job. Since the two jobs are different, no active comparison can be made about the efficiency of machines.

Video Solution:



Q5 Text Solution:

Statement 1 provides information about the number of men and the time taken, therefore we can gauge whether 6 men can complete the work in 6 days or not. Statement 2 gives information about women and a portion of the job, therefore we can't comment on men



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completing the job based on women's efficiency. Therefore, statement 1 alone is sufficient.

Video Solution:



Q6 Text Solution:

To determine which machine is more efficient, we need to compare the rates of work for both machines. Statement 1 provides the time taken by Machine R to complete $\frac{4}{7}$ of the job in 9 hours. Statement 2 provides the time taken by Machine S to complete $\frac{3}{5}$ of the job in 7 hours. Combining both the statements we will be able to determine which of two machines can complete the work faster and is more efficient than other.

Video Solution:



Q7 Text Solution:

To find the average weight of the entire group, we need the total sum of the weights. Statement 1 provides the average weight of the first 8 people, but it doesn't cover the entire group. Statement 2 provides the average weight of the first 12 people, and because it also includes the first 8 people, it covers the entire group. Therefore, Statement 2 alone is sufficient to determine the average weight of the group.

Video Solution:



Q8 Text Solution:

To find the average score, we need the total sum of the scores. Statement 1 provides the sum of the scores, and also the number of matches (5), therefore we can calculate the average of the last five matches. Statement 2 provides information about the highest score, but it doesn't give the entire set of scores. Therefore, Statement 1 alone is sufficient.

Video Solution:



Q9 Text Solution:

To find the average of the five numbers, we need the total sum. Statement 1 provides the sum of two numbers, but it's not sufficient to calculate the average. Statement 2 provides information about three of the numbers, but it doesn't give the entire set of numbers. Combining both statements, we still don't have enough information to determine the average of the five numbers. Therefore, the statements together are not sufficient.

Video Solution:



Q10 Text Solution:

Statement 1 tells us the cost price and the selling price of the shirt. To find out if there was a profit,



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we need to compare the selling price with the cost price. Here, the selling price (\$60) is greater than the cost price (\$50), indicating a profit. Statement 2 talks about the discount on marked price but doesn't talk about cost price or the actual value of marked price. Therefore, Statement 1 alone is sufficient.

Video Solution:



Q11 Text Solution:

Statement 1 provides the cost price and the selling price. However, we don't know the marked price to calculate discount percentage. Statement 2 mentions that selling price is 20% less than marked price which means that the shirt is sold at 20% discount. Therefore, statement 2 alone is sufficient.

Video Solution:



Q12 Text Solution:

Statement 1 provides information about the cost price and discount percentage. To determine if there was a loss, we need to compare the selling price with the cost price. Statement 1 doesn't mention the selling price. Statement 2 only mentions the marked price and not the selling price or the cost price. Combining both the statements we have all the necessary information of cost price, marked price, discount percentage and the selling price.

Video Solution:



Q13 Text Solution:

Using Statement 1, we can use the simple interest formula $SI = \frac{P \times R \times T}{100}$. Putting the values of SI in terms of P and T as 10 years we can calculate rate of interest R.

Using Statement 2, we can use the compound interest formula: $A = P(1 + \frac{r}{100})^t$. Putting the values of A in terms of P and T as 10 years we can calculate rate of interest R.

Therefore, either statement alone is sufficient.

Video Solution:



Q14 Text Solution:

Statement 1 provides the volume and concentration of the solution in Container A, but we don't have information about Container B. Statement 2 provides the volume and concentration of the solution in Container B, but we don't have information about Container A. Combining both statements, we can compare the concentrations of the solutions in Containers A and B. Therefore, the statements together are sufficient.

Video Solution:



Q15 Text Solution:



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Using Statement 1, we know the number of apples, but we don't know the number of oranges, so we cannot determine the ratio. Using Statement 2, we know that oranges are 20 more than the bananas, but we don't have specific numbers for bananas or oranges. Combining both statements, we still can't determine the ratio of apples to oranges. Therefore, the statements together are not sufficient.

Video Solution:



Q16 Text Solution:

For a quadratic equation $ax^2 + bx + c = 0$ to have real roots, the discriminant ($b^2 - 4ac$) must be non-negative. Using Statement 1, we can't determine the discriminant as it involves the values of a, b, and c. Statement 2 gives a similar equation, and we can't determine the discriminant from it either. Combining both statements, we can determine whether discriminant will be non-negative therefore both the statements together are necessary to answer the question.

Video Solution:



Q17 Text Solution:

Product of roots = c/a . Product of two reciprocal numbers will always equal to 1. Statement 1 gives no information about product of roots. From statement 2 by putting the values of c & a we can determine whether the product of roots is 1 or not and therefore determine whether the

equation has reciprocal roots or not. Therefore, statement 2 alone is sufficient.

Video Solution:



Q18 Text Solution:

Using Statement 1, if $a=d$ and $b=e$, the coefficients of x and y in both equations are the same, indicating parallel lines. Although, we cannot determine if the lines are coincident or distinct parallel lines from this information alone. We can surely say that these pair of lines won't have a unique solution as either these will have infinitely many solutions or no solutions at all. Statement 2 tells us that the constant terms in the two equations are different. However, there's no information about the coefficients of x and y. Therefore, statement 1 alone is sufficient.

Video Solution:



Q19 Text Solution:

Using Statement 1, if $x > 8$, then $|x-3| > 5$ is true. Using Statement 2, if $0 < x < 3$, then $|x-3| > 5$ is false, however, we can still answer the question whether $|x-3| > 5$ or not. Therefore, either statement alone is sufficient.

Video Solution:



Q20 Text Solution:



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From statement 1, we can't conclude anything from statement 1 as we do not know about the nature of a and b.

From statement 2: $5^3 = 125$, $3^4 = 81$, Clearly, the inequality holds, therefore statement 2 alone is sufficient.

Video Solution:



Q21 Text Solution:

Using Statement 1, if $x > 1$, then $2^{2x} > 2^2 > 4$ and $3^x > 3^1 > 3$, minimum value of $2^{2x} + 3^x$ is 7, however, it can also exceed 10 for larger values of x. Using Statement 2, if $x < 3$, then $2^{2x} < 2^6 < 64$ and $3^x < 3^3 < 27$, maximum value of $2^{2x} + 3^x$ is 91, however it can also be less than 10 for smaller values of x. Combining both statements $1 < x < 3$, still gives both options of inequality being both greater or lesser than 10. Therefore, both statements together are not sufficient.

Video Solution:



Q22 Text Solution:

Solving the inequality -

$$\log_{3^x}(81) < 2 ; 3^{2x} > 81 ; 3^{2x} > 3^4$$

$$2x > 4$$

$$x > 2$$

Statement 1 mentions $x > 5$ which satisfies the solution of the inequality of $x > 2$. Therefore, statement 1 is sufficient

Statement 2 mentions $x < 3$ which includes both scenarios of $2 < x < 3$ where the inequality holds and $x < 2$ where inequality doesn't hold. Therefore, statement 2 is not sufficient.

Video Solution:



Q23 Text Solution:

Using Statement 1, the unit digit of $2^{(n+2)}$ is equal to unit digit of $2^n \times 2^2 = 2 \times 4 = 8$.

Using Statement 2, if n is a multiple of 4, 2^n ends in 6, therefore $2^{(n+2)}$ ends in 4. Both statements independently are sufficient.

Video Solution:



Q24 Text Solution:

Using Statement 1, if n is divisible by 3, it might be 3, 6, 9, etc., and the remainder when divided by 5 could be 3, 1, 4, etc. Statement 1 is not sufficient.

Using Statement 2, if the remainder when n is divided by 15 is 10, then the possible values of n are 10, 25, 40, etc., and the remainder when divided by 5 is 0. Statement 2 is sufficient.

Video Solution:



Q25 Text Solution:



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Using statement 1, we know both the numbers and can easily find the HCF of 12 & 18 which is 6. Using statement 2, we know about LCM but have no information about the numbers, therefore, we can't find HCF. Statement 1 is sufficient.

Video Solution:



Q26 Text Solution:

Using Statement 1, we know the average age of female students, but we don't know how many female students there are. Statement 1 alone is not sufficient.

Using Statement 2, we know the average age of male students, but we don't know how many male students there are. Statement 2 alone is not sufficient.

Combining both statements, we still don't have information about the number of female students and male students. Both statements together are not sufficient.

Video Solution:



Q27 Text Solution:

Using Statement 1, the team can have either 2 boys and 2 girls or 3 boys and 1 girl or 4 boys. However, there's no information about the total number of boys or girls available to make the selection. Therefore, statement 1 alone is not sufficient.

Using Statement 2, the team can have 0, 1, 2, or 3 girls. However, there's no information about the total number of boys or girls available to make

the selection. Therefore, statement 2 alone is also not sufficient.

Combining the statements, we still don't have enough information about the number of boys or girls. Therefore, both statements combined are still not sufficient.

Video Solution:



Q28 Text Solution:

Using Statement 1, fix 'M' at the start and 'I' at the end. The remaining 3 positions can be chosen and arranged from the remaining letters and calculate the number of 5 letter words. Therefore, statement 1 is sufficient.

Using Statement 2, fix the adjacent 'S' & 'P' letters. Similarly, the remaining 3 positions can be chosen and arranged from the remaining letters and calculate the number of 5 letter words. Therefore, statement 2 is also sufficient.

Both statements independently provide enough information to answer the question.

Video Solution:



Q29 Text Solution:

Using Statement 1, there are 12 face cards out of 52 cards in total. The probability of selecting a face card is $P = \frac{12}{45} = \frac{4}{15}$. Statement 1 alone is sufficient.

Using Statement 2, knowing the number of suits does not provide information about the probability of selecting a face card. Statement 2 alone is not sufficient.



[Android App](#)

| [iOS App](#)

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Video Solution:**Q30 Text Solution:**

Using statement 1, we have information about red marbles but no information about blue or other coloured marbles. Therefore statement 1 alone is not sufficient.

Using statement 2, we have information about blue and green marbles but no information about

red marbles. Therefore, statement 2 alone is not sufficient.

Combining both statements we know everything about red, blue and green marbles, therefore we can calculate the probability.

Video Solution:[Android App](#)[iOS App](#)[PW Website](#)