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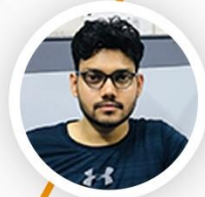
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# 50 Maths Inequalities Questions for Bank PO Pre & Clerk Mains Exams.

Directions: In each of the following questions, read the given statement and compare the Quantity I and Quantity II on its basis. (Only quantity is to be considered)

1. **Quantity I: Speed of boat in still water, if a man can travel 54 km downstream in 9 hours and 40 km upstream in 10 hours.**

**Quantity II: Speed of boat in still water, if a man can travel 45 km downstream in 9 hours and the speed of stream is 1 kmph.**

- A. Quantity I  $\leq$  Quantity II                      B. Quantity I  $\geq$  Quantity II  
C. Quantity I  $>$  Quantity II                      D. Quantity I  $<$  Quantity II  
E. Quantity I = Quantity II

2. **Quantity I: Age of mother, if the age of Smiti is  $\frac{1}{7}$ th of her mother's age and after 5 years Smiti's age will be 12 years.**

**Quantity II: Age of mother, if the ratio of the ages of Sukriti and her mother is 3: 7 and after 3 years the ratio of their ages will be 6: 13.**

- A. Quantity I  $\leq$  Quantity II                      B. Quantity I  $\geq$  Quantity II  
C. Quantity I  $>$  Quantity II                      D. Quantity I  $<$  Quantity II  
E. Quantity I = Quantity II

3. **Quantity I: A bag contains 3 green, 2 yellow and 3 purple balls. Two balls are drawn at random, what is the probability that no ball is purple.**

**Quantity II:  $(7x - 8)(14x - 5) = 0$**

- A. Quantity I  $\leq$  Quantity II                      B. Quantity I  $>$  Quantity II  
C. Quantity I = Quantity II                      D. Quantity I  $<$  Quantity II  
E. Quantity I  $\geq$  Quantity II

4. **What is the area of the rectangle?**

**Quantity I: The area of the rectangle is equal to the area of the square whose side is 24 cm.**

**Quantity II: The perimeter of the rectangle is 88cm, if the ratio of the length and the breadth of the rectangle is 6: 5.**

- A. Quantity I = Quantity II  
B. Quantity I < Quantity II  
C. Quantity I  $\leq$  Quantity II  
D. Quantity I  $\geq$  Quantity II  
E. Quantity I > Quantity II

5. **Anuj can do the half of the work in 12 days and Manoj can do the whole work in 30 days.**

**Quantity I: In how many days will Anuj and Manoj do the whole work?**

**Quantity II: If Anuj starts the work and works for 4 days, after that Manoj join him, in how many days will the whole work be completed?**

- A. Quantity I  $\leq$  Quantity II  
B. Quantity I  $\geq$  Quantity II  
C. Quantity I > Quantity II  
D. Quantity I < Quantity II  
E. Quantity I = Quantity II

6. **Quantity I: Selling price, if cost price is Rs. 50,000 and profit is 20%**

**Quantity II: Selling price, if cost price is Rs. 50,000 and shopkeeper gained 50/3 % after giving discount of 25%**

- A. Quantity: I > Quantity: II  
B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: II > Quantity: I  
D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation cannot be established

7. **Quantity I: A boat goes from point P to Q downstream having a distance 120m and comeback to point T which is in the middle of P and Q in 6 secs then what is the speed of boat (Kph) if the speed of stream is 10m/s?**

**Quantity II: The ages of Ajinkya and Rahane 5 years ago is in the ratio 3:2 and after 15 years ratio of ages of Ajinkya to Rahane is 17:13, then what is the sum of the ages in years of Ajinkya and Rahane 9 years from now?**

- A. Quantity: I > Quantity: II  
B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II  
D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation cannot be established

8. **Quantity I: 5 years ago, the ratio of Seema and Meera's age was 8: 5. Two years hence, the ratio of their ages will becomes 5: 4 Find the present age of Meera.**

**Quantity II: The age of son is half the age of mother. His sister's age is 20 years. Age of the mother is twice the age of his sister. Find the age of the son.**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation cannot be established

9. **A box contains 7 Blue balls, 4 Green balls, 5 Grey balls and 9 White balls.**

**Quantity I: If two balls are drawn at random the probability that both the balls are either Grey or Green**

**Quantity II: If four balls are drawn at random the probability that all are of different colours**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation cannot be established

10. **A box contains 6 pink balls, 5 blue balls, 3 green balls and 6 yellow balls.**

**Quantity I: If three balls are drawn at random then the probability that all the balls are either blue or yellow.**

**Quantity II: If three balls are drawn at random then the probability that all are of different colours.**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation cannot be established

11. **The speed of a motorboat in upstream is 75% less than that of downstream.**

**Quantity I: The speed of the stream is how much percentage of the speed of the motorboat in downstream?**

**Quantity II: The speed of the stream is how much percentage less than the speed of the motorboat in still water?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

12. **A shopkeeper gives 10% discount on the marked price but adds 5% tax on the discounted price.**

**Quantity I: If the selling price of the article is Rs. 850. 5 then what is the marked price of the article?**

**Quantity II: 900**

- A. Quantity: I > Quantity: II  
B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II  
D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**13. Quantity I: 'X'  $X^2 + \sqrt{3}X - 60 = 0$**

**Quantity II: 'Y'  $Y^2 + 7\sqrt{2}Y + 20 = 0$**

- A. Quantity: I > Quantity: II  
B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II  
D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**14. The ratio of A's income to B's income is 4: 5 and the difference between their income is Rs. 10000.**

**Quantity I: A saves 30% of his income then what is his expenditure?**

**Quantity II: B spends 45% of his income then what is his saving?**

- A. Quantity: I > Quantity: II  
B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II  
D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**15. Two persons, P and Q together can complete a piece of work in 30 days. The efficiency of P is 20% more than that of Q.**

**Quantity I: If P works at 25% of his efficiency then how many days will he take to complete two – fifth of the work?**

**Quantity II: If Q works at 40% of his efficiency then how many days will he take to complete half of the work?**

- A. Quantity: I > Quantity: II  
B. Quantity: I  $\geq$  Quantity: II

C. Quantity: I < Quantity: II

D. Quantity: II  $\geq$  Quantity: I

E. Quantity I = Quantity II or relation can't be established

- 16. The time taken by a motorboat to travel 1050 km upstream is 40 hours more than the time taken by it to travel the same distance in downstream. The speed of the motorboat in still water is 500% more than that the speed of stream.**

**Quantity I: How much time the motorboat will take to travel the same distance in upstream?**

**Quantity II: How much time the motorboat will take to travel 1500 km downstream if due to wind, the speed of stream was increased by 20%?**

A. Quantity: I > Quantity: II

B. Quantity: I  $\geq$  Quantity: II

C. Quantity: I < Quantity: II

D. Quantity: II  $\geq$  Quantity: I

E. Quantity I = Quantity II or relation can't be established

- 17. The ratio of the efficiency of a man to a woman is 4: 3. A group of 2 men and 2 women together can complete a piece of work in 12 days.**

**Quantity I: How many days, a group of a man and three women will take to complete the same piece of work?**

**Quantity II: if the efficiency of a men was increased by 20% and the efficiency of a women was increased by 50% then how many days they will take to complete 75% of the piece of work if they work together?**

A. Quantity: I > Quantity: II

B. Quantity: I  $\geq$  Quantity: II

C. Quantity: I < Quantity: II

D. Quantity: II  $\geq$  Quantity: I

E. Quantity I = Quantity II or relation can't be established

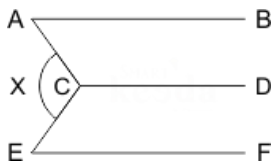
- 18. When 5 litres of water were added with some quantity of pure milk then the ratio of milk to water become 3: 2.**

**Quantity I: In the mixture, when 1. 5 litres of pure milk are added then what will be the concentration of milk in the new mixture?**

**Quantity II: Instead of 5 litres of water, if 3.5 litres of water were added and the quantity of pure milk remained the same then what would be the concentration of pure milk in the mixture?**

- A. Quantity: I > Quantity: II  
B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II  
D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 19. In the given figure, AB, CD, and EF are parallel lines and AC is equal to EC. The angle BAC is 30 degree.**



**Quantity I: What is the value of angle ACE (x) ?**

**Quantity II: What is the value of angle EAC?**

- A. Quantity: I > Quantity: II  
B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II  
D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 20. A train of 500 meters length can cross completely a platform of 800 meters length in 2 minutes 10 seconds.**

**Quantity I: What is the speed of the train in meters per second?**

**Quantity II: A man running in the same direction of the train can pass the train completely in 8 minutes 20 seconds then what was the speed of the man in meters per sec?**

- A. Quantity: I > Quantity: II  
B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II  
D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**21. A motorboat can travel  $x$  km upstream and  $x + 20$  km downstream in 17.5 hours. If the ratio of the speed of the motorboat in still water to the speed of stream is 3: 1 and the difference between their speed is 4 km.**

**Quantity I: What is the value of  $x$ ?**

**Quantity II: How much distance the motorboat will travel downstream in 5 hours 15 minutes?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**22. Two persons, A and B together can do a piece of work in 15 days. B is 80% as efficient as A.**

**Quantity I: If they work on alternate day, starting with A then how many days will they take to complete 50% of the work?**

**Quantity II: How many days, B alone will take to complete 40% of the total work?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**23. The speed of a 500 meters long train is 5 km per hour more than that of a car. If the car and the train travel in opposite direction then the car can cross the train completely in 1.5 minutes.**

**Quantity I: What is the speed of the train?**

**Quantity II: What will be the speed of car when it is increased by 50%?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established



**24. In a mixture of Ghee and Dalda, the quantity of Dalda is 40% less than the quantity of Ghee. When 5 litres of pure Ghee were added then the quantity of Ghee becomes 80% more than the quantity of Dalda.**

**Quantity I: What is the quantity of Dalda in the mixture?**

**Quantity II: 40 litres**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**25. On 1st Jan 2018, the average age of a family of 5 members is 45 years. On 1st July 2018, one of the members of the family died. On 1st Jan 2019, the average age of the family will become 32 years.**

**Quantity I: At what age, did the person die?**

**Quantity II: 100 years**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**26. In a mixture of milk and water, the ratio of milk to water is 2: y. When 4 litres of milk were added in the mixture then, the concentration of water becomes 50% but when 4 litres of water were added in the mixture then the concentration of milk becomes 33.33%.**

**Quantity I: Milk will be what part of the mixture when, 5 litres of milk were added in the original mixture?**

**Quantity II: Water will be what part of the mixture when 3 litres of water were added in the original mixture?**

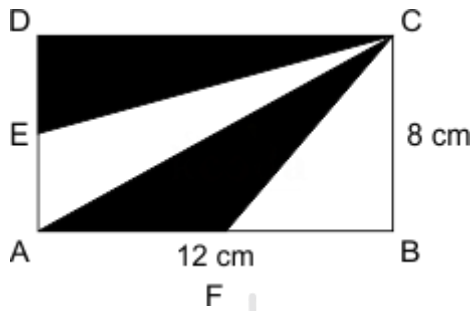
- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

27. Quantity I:  $x^2 - 10\sqrt{7}x + 168 = 0$

Quantity II:  $y^2 - \sqrt{6}y - 72 = 0$

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

28. In the given rectangle, AB = 12 cm, CD = 8 cm. AF = FB and AE = ED.



Quantity I: What is the area of shaded region?

Quantity II: What is the area of unshaded region?

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

29. The efficiency of A is 25% more than that of B. And total work is 100 units.

Quantity I: Find the number of days B alone will take to complete 75% of the work?

Quantity II: Find the number of days A and B together will take to complete 150% of the work?

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

30. Quantity I:

**A gave one-fifth of the amount he had to**

**B. B in turn gave half of what he received from A to**

**C. If the difference between the remaining amount with A and the amount received by C is Rs. 700, how much money did B receive from A?**

**Quantity II: Rs 250**

A. Quantity: I > Quantity: II

B. Quantity: I  $\geq$  Quantity: II

C. Quantity: I < Quantity: II

D. Quantity: II  $\geq$  Quantity: I

E. Quantity I = Quantity II or relation can't be established

**31. In a mixture of 80 litres acid and water, the ratio of acid to water is 3: 5.**

**Quantity I: when half of the mixture was withdrawn and in the same quantity a new solution X of acid and water was added then what should be concentration of acid in the new solution X if the ratio of acid to water in the mixture become 1:1.      Quantity II: 50%**

A. Quantity: I > Quantity: II

B. Quantity: I  $\geq$  Quantity: II

C. Quantity: I < Quantity: II

D. Quantity: II  $\geq$  Quantity: I

E. Quantity I = Quantity II or relation can't be established

**32. In a family of three members, A, B, and C the difference between A's age and B's age is same as the difference between B's age and C's age. The average of their age is 45 years and the age of eldest member of the family is 60 years.**

**Quantity I: What is the age of smallest member of the family?**

**Quantity II: 14 years ago, what was the average of the age of smallest member and that of eldest member of the family?**

A. Quantity: I > Quantity: II

B. Quantity: I  $\geq$  Quantity: II

C. Quantity: I < Quantity: II

D. Quantity: II  $\geq$  Quantity: I

E. Quantity I = Quantity II or relation can't be established

**33. Quantity I: In a school, 50% of the total number of girls is equal to 30% of the total number of boys then the number of girls is what percentage of the total number of students of the school?**

**Quantity II: In a school, 33.33% of the total number of girls is equal to 66.67% of the total number of boys then the total number of girls is what percentage of the total number of students of the school?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 34. A train of length  $x$  meters travelling at the speed of 54 km per hour can cross a boy standing on a platform in 16 seconds but at the speed of 72 km per hour it can cross a platform of  $y$  meters long in 24 seconds.**

**Quantity I: What is the length of the train?**

**Quantity II: What is the length of the platform?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 35. 10 litres of water were drawn from a cask full of water and it was filled with 30 litres milk then the concentration of milk in the mixture become 20%.**

**Quantity I: Again, how many litres of mixture should be replaced with 10 litres milk so the concentration of water in the mixture will become 60%.**

**Quantity II: What was the original quantity of water in the cask?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 36. P can do a piece of work in  $x$  days and Q can do the same work in  $3x$  days.**

**Quantity I: If both of them together complete half of the work in 10 days then what is the value of  $x$ ?**

**Quantity II: If P can do half of the work at 40% of his efficiency in 31.25 days then what is the value of  $x$ ?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**37. The average weight of 5 boys is 22.5 kg which is equal to two times of the average weight of 3 girls.**

**Quantity I: What is the average weight of the 5 boys and the 3 girls?**

**Quantity II: 20 kg**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**38. A motorcyclist X starts from a point P at 5: 00 am at the speed of 24 km per hour and from the same point other motorcyclist Y starts at 8: 00 am at the speed of 40 km per hour.**

**Quantity I: If both meet each other at other point Q and return immediately towards point P. How much total time the motorcyclist X will take go and return immediately to the point P?**

**Quantity II: 15 hours**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

**39. Quantity I: 'x'  $x^2 + x - 56 = 0$**

**Quantity II: 'y'  $2y^2 - 17y + 21 = 0$**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 40. The monthly expenditures of a man on travelling is 40% less than that on food. The difference between the monthly expenditures on food and that on travelling is 10% of his salary.**

**Quantity I: If the person spends Rs. 1200 per month on travelling then what is his monthly salary?**

**Quantity II: If his monthly salary is Rs. 25000 then how much did he spend on food?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 41. Quantity I: Find the amount on compound interest on a sum of Rs.55000 at the rate of 15% per annum after three years.**

**Quantity II: Find the simple interest on a sum of Rs.60000 at the rate 25% per annum after 5.5 years.**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 42. Quantity I: What will be the probability of selecting a letter as vowel from the word KNIFE?**

**Quantity II: Find the probability of selecting 2 Red balls from a bag containing 8 red balls and 10 yellow balls?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 43. Quantity I: The length of a rectangular park is 4 times its breadth. There is a fountain in it of area is 900 square meter and which is one fourth of the total area of the park. What is the breadth of the park?**

**Quantity II: The ratio of length to breadth of the rectangle is 5: 3. If the length of the rectangle is decreased by 8 m it becomes a square, then what is the area of the square thus formed?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 44. Quantity I: There are 7 white, 4 green, 3 yellow and 6 black balls in a bag. Four ball are drawn at random. Find the probability that all the balls are of different colours.**

**Quantity II: There are 3 red, 5 green and 6 white balls in a bag. Three balls are drawn at random. Find the probability that all the balls are of same colour.**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

- 45. Quantity I: When a motorboat travels in upstream then its speed become 75% of the speed of the motorboat in still water .The speed of the stream is how much percentage of the speed of the motorboat in still water?**

**Quantity II: When a sum of money was invested at simple interest then at the end of 8 years the amount becomes 300% of the sum of money. What is the rate of interest?**

- A. Quantity: I > Quantity: I                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: I  $\leq$  Quantity: II  
E. Quantity I = Quantity II or relation can't be established

- 46. Quantity I: Ram can do a piece of work in 20 days. If the efficiency of Ram is 66.67% of the efficiency of Mohan and the efficiency of Mohan is 25% less than the efficiency of Prakash then how long Prakash will take to do the same piece of work?**

**Quantity II: A person can type 50 pages in 10 hours then how many days will he take to type a book of 1320 pages? [Assume the person works continuously for 24hrs/day]**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: I  $\leq$  Quantity: II  
E. Quantity I = Quantity II or relation can't be established

- 47. Quantity I: The base of an isosceles triangle is 12 cm and the height of the triangle is 10 cm then what is the perimeter of the triangle?**

**Quantity II: The side of a square is 8 cm. A rectangle is drawn, the length of which is equal to the diagonal of the square and width is equal to circumradius of the square. What is the perimeter of the rectangle?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: I  $\leq$  Quantity: II  
E. Quantity I = Quantity II or relation can't be established

- 48. Quantity I: The average of three numbers which are in Arithmetic Progression is 104. The difference between the largest number and the smallest number is 4 then, what is the value of the largest number?**

**Quantity II: A teacher writes 50 distinct positive integers on the blackboard the average of which is 125.5. A student comes and erased one of the number then the average of the remaining numbers become 125.9. What is the value of the number the student had erased?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: I  $\leq$  Quantity: II  
E. Quantity I = Quantity II or relation can't be established

- 49. Quantity I: The average weight of 17 students in a school is 37.5 kg. If 5 of them leave the school then the average weight of the remaining students decreases by 2.5 kg. What was the average weight of five students, who left the school?**



**Quantity II: In a mixture of 160 litres milk of water solution, the concentration of milk is 60%. When some litres of water are added then the concentration of milk becomes 47.29%. What is the numerical value of water added in the mixture?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

50. **Quantity I: A train of length 200 m can cross a platform in 10 sec. If the train increases its speed by 25% then it can cross a person standing on the same platform in 3.2 seconds. What is the length of platform?**

**Quantity II: Two friends, A and B start running towards each other at the speed of 12 km per hour and 18 km per hour. After 30 seconds of starting, the distance between them is 750 meters. What will be the distance between them after 81 seconds of starting?**

- A. Quantity: I > Quantity: II                      B. Quantity: I  $\geq$  Quantity: II  
C. Quantity: I < Quantity: II                      D. Quantity: II  $\geq$  Quantity: I  
E. Quantity I = Quantity II or relation can't be established

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### Correct Answers:

1	2	3	4	5	6	7	8	9	10
C	E	A	E	D	A	C	E	C	C
11	12	13	14	15	16	17	18	19	20
C	E	E	A	A	A	C	C	E	C
21	22	23	24	25	26	27	28	29	30
C	A	A	C	A	C	A	E	A	C
31	32	33	34	35	36	37	38	39	40
A	C	C	E	C	A	C	E	E	A
41	42	43	44	45	46	47	48	49	50
A	A	C	A	E	C	A	A	A	C



# Smartkeeda

The Question Bank

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**Explanations:**

**1. Quantity I:**

Let speed of boat =  $x$  kmph, speed of stream =  $y$  kmph

upstream speed =  $x - y$ , downstream speed =  $x + y$

$$x + y = \frac{54}{9}$$

$$x + y = 6 \dots 1$$

$$x - y = \frac{40}{10}$$

$$x - y = 4 \dots 2$$

equation 1 + equation 2

$$x = 5$$

speed of boat = 5 kmph

**Quantity II:**

Let speed of boat =  $x$  kmph, speed of stream = 1 kmph

downstream speed =  $x + 1$

$$\frac{45}{9} = x + 1$$

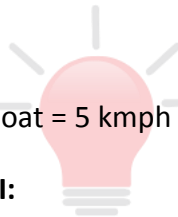
$$5 - 1 = x$$

$$x = 4$$

Speed of boat = 4 kmph

Quantity I > Quantity II

Hence, option C is correct.



**2. Quantity I:**

Smiti's age after 5 years = 12 years

Present age of Smiti = 7 years

$$\frac{\text{Mother's age}}{7} = \text{Smiti's age}$$

Mother's age =  $7 \times 7 = 49$  years

**Quantity II:** Let Sukriti's age =  $3x$ , Mother's age =  $7x$

According to the statement,

$$3x + 3 : 7x + 3 = 6 : 13$$

$$13(3x + 3) = 6(7x + 3)$$

$$39x + 39 = 42x + 18$$

$$39 - 18 = 42x - 39x$$

$$21 = 3x$$

$$x = 7$$

Mother's age =  $7 \times 7 = 49$  years

Quantity I = Quantity II

Hence, option E is correct.

**3. Quantity I:**

Favourable outcomes =  ${}^5C_2 = 10$

Total outcomes =  ${}^8C_2 = 28$

$$\text{Probability} = \frac{10}{28} = \frac{5}{14}$$

**Quantity II:**

$$(7x - 8)(14x - 5) = 0$$

$$7x - 8 = 0, 14x - 5 = 0$$



$$x = \frac{8}{7}, \frac{5}{14}$$

Quantity I  $\leq$  Quantity II

Hence, option A is correct.

**4. Quantity I:**

Area of the square =  $24 \times 24$

$$= 576 \text{ cm}^2$$

Area of the square = Area of the rectangle

$$\text{Area of the rectangle} = 576 \text{ cm}^2$$

**Quantity II:**

Length of the rectangle =  $6x$ , Breadth =  $5x$

$$\text{Perimeter} = 88$$

$$2(l + b) = 88$$

$$6x + 5x = 44$$

$$11x = 44$$

$$x = 4$$

Length =  $24\text{cm}$ , breadth =  $20\text{cm}$

Area of the rectangle =  $24 \times 20$

$$= 480 \text{ cm}^2$$

Quantity I  $>$  Quantity II

Hence, option E is correct.



5. Anuj can do the half in 12 days so he can do the whole work in 24 days. Manoj can do the whole work in 30 days.

**Quantity I:**

$$\text{Anuj and Manoj can do the whole work together} = \frac{1}{\frac{1}{24} + \frac{1}{30}}$$

$$= \frac{1}{\frac{5+4}{120}}$$

$$= \frac{120}{9} = \frac{40}{3} \text{ days}$$

**Quantity II:**

$$\text{Anuj's 1 day work} = \frac{1}{24}$$

$$\text{Anuj's 4 day work} = \frac{4}{24} = \frac{1}{6}$$

$$\text{Remaining work} = 1 - \frac{1}{6} = \frac{5}{6}$$

Anuj and Manoj can do the remaining work,

$$= \frac{\frac{5}{6}}{\frac{1}{24} + \frac{1}{30}}$$

$$= \frac{\frac{5}{6}}{\frac{9}{120}}$$

$$= \frac{100}{9} \text{ days}$$



$$\text{Total time} = \frac{100}{9} + 4 = \frac{136}{9}$$

Quantity I < Quantity II

Hence, option D is correct

**6. Quantity I:**

$$SP = \frac{120}{100} \times 50000 = \text{Rs.}60000$$

**Quantity II:**

$$\text{Discount} = 25\% = \frac{1}{4} \text{ (MP} = 4, \text{ SP} = 4 - 1 = 3)$$

$$\text{Gain} = \frac{50}{3}\% = \frac{1}{6} \text{ (CP} = 6, \text{ SP} = 6 + 1 = 7)$$

Make SP same

CP.....SP..... MP

18.....21.....28

$$18 = 50000$$

So 21 = Rs. 58333.33

Hence, Quantity I > Quantity II

Therefore, option (A) is correct.

**7. Total no of balls = 6 + 5 + 3 + 6 = 20**

**Quantity I:**

$$n(S) = 20C_3$$

$$n(E) = 5C_3 + 6C_3$$

$$P(E) = \frac{5C_3 + 6C_3}{20C_3} = \frac{30}{1140} = \frac{3}{114}$$

**Quantity II:**

$$n(S) = 20C_3 = 1140$$

$$n(E)$$

$$= 6C_1 \times 5C_1 \times 3C_1 + 5C_1 \times 3C_1 \times 6C_1 + 3C_1 \times 6C_1 \times 6C_1 + 6C_1 \times 5C_1 \times 6C_1 \quad n(E)$$



$$= 6 \times 5 \times 3 + 5 \times 3 \times 6 + 3 \times 6 \times 6 + 6 \times 5 \times 6$$

$$n(E) = 90 + 90 + 108 + 180 = 468$$

$$P(E) = \frac{468}{1140}$$

Quantity II > Quantity I

Hence, option (C) is correct.

### 8. Quantity I:

Let the speed of boat be  $y$  m/sec.

Then, Upstream speed =  $(y - 10)$  m/sec

Downstream speed =  $(y + 10)$  m/sec

Thus,

$$\frac{120}{y + 10} + \frac{60}{y - 10} = 6$$

$$6y^2 - 180y = 0$$

$$6y(y - 30) = 0$$

$$y = 0, y = 30$$

Therefore, the speed of the boat is 30m/sec.

$$\text{Required speed} = 30 \times \frac{18}{5} = 108 \text{ kmph}$$

### Quantity II:

Let ages of Ajinkya and Rahane 5 years ago be  $3y, 2y$

$$\text{Then, } \frac{3y + 20}{2y + 20} = \frac{17}{13}$$

$$\text{or, } 39y + 260 = 34y + 340$$

$$\text{or, } 5y = 80$$

$$\text{or, } y = 16$$

$$\text{Present age of Ajinkya} = (3 \times 16) + 5 = 53$$





Present age of Rahane =  $(2 \times 16) + 5 = 37$

Sum of their ages after 9 years from now =  $(53 + 9) + (37 + 9) = 108$  years

Here, Quantity I = Quantity II.

Hence, option (E) is correct.

### 9. Quantity: I

Let the present ages of Seema and Meena are  $s$  and  $m$  respectively.

Now,

$$\frac{s-5}{m-5} = \frac{8}{5}$$

$$\Rightarrow 8m - 40 = 5s - 25$$

$$\Rightarrow \frac{8m-15}{5} = s \dots\dots (i)$$

And,

$$\frac{s+2}{m+2} = \frac{5}{4}$$

$$\Rightarrow 5m + 10 = 4s + 8$$

$$\Rightarrow s = \frac{5m+2}{4} \dots\dots (ii)$$

Equating (i) and (ii), we get

$$\frac{8m-15}{5} = \frac{5m+2}{4}$$

$\Rightarrow m = 10$  Hence, the present age of Meera is 10 years.

### Quantity: II

Let, the present ages of Son, mother and sister are  $s$ ,  $m$  and  $sis$ . Now,  $2s = m$  .....(i) And,  $sis = 20$  years .....(ii)  $m = 2 sis$  ..... (iii) Using equation (ii) and (iii), we can say that  $m = 40$  years ..... (iv) Using (iv) and (i), we can say that  $s = 20$  years. Here, Quantity: I < Quantity II

Hence, option (C) is correct.



### 10. Quantity: I

Total number of way in which two balls can be drawn

$$n(S) = {}^{25}C_2 = \frac{25 \times 24}{2} = 300$$

Total number of ways in which both the balls drawn are either Grey or Green  $n(E) = {}^4C_2 + {}^5C_2 = 6 + 10$  Probability the both the balls are either Grey or Green

$$n(P) = \frac{n(E)}{n(S)} = \frac{16}{300}$$

**Quantity: II** Total number of ways in which four ball can be drawn

$$n(S) = {}^{25}C_4 = \frac{25 \times 24 \times 23 \times 22}{4 \times 3 \times 2 \times 1}$$

$$n(S) = 12,650$$

Total number of ways in which all the balls are of different colour.

$$n(E) = {}^7C_1 \times {}^4C_1 \times {}^5C_1 \times {}^9C_1 = 7 \times 4 \times 5 \times 9$$

$$n(E) = 1260$$

Probability that both the balls are of different colour

$$n(P) = \frac{n(E)}{n(S)} = \frac{1260}{12650}$$

$$n(P) = \frac{126}{1265}$$

Here, Quantity: I < Quantity: II

Hence, option (C) is correct.

- 11.** Let the speed of the motorboat in still water =  $u$  km per hour and the speed of the stream =  $v$  km per hour

The speed of the motorboat in downstream =  $(u + v)$  km per hour

And the speed of the motorboat in upstream =  $(u - v)$  km per hour

According to the question,  $(u - v) = (100 - 75)\%$  of  $(u + v) = 25\%$  of  $(u + v)$

$$4u - 4v = u + v$$

$$3u = 5v$$

$$u : v = 5 : 3$$

**Quantity I:** The speed of the motorboat in downstream =  $5x + 3x = 8x$  km per hour

$$\text{The reqd. \%} = 3x \times \frac{100}{8x} = 37.5\%$$

**Quantity II:**

$$\text{Reqd. \%} = \frac{(5 - 3) \times 100}{5} = 40\%$$

Therefore, quantity I < quantity II

Hence, option C is correct.

- 12.** Let the marked price of the article =  $10x$  then discounted price after 10% discount on the marked price =  $(100 - 10)\%$  of  $10x = 90\%$  of  $10x = 9x$

The selling price after adding 5% sales tax on the discounted price =  $(100 + 5)\%$  of  $9x = 105\%$  of  $9x = 1.05 \times 9x$

**Quantity I:**

$$1.05 \times 9x = 850.5$$

$$1.05x = 94.5$$

$$x = 90$$

The marked price of the article =  $10x = 10 \times 90 = \text{Rs. } 900$

**Quantity II:** 900

Therefore, Quantity I = Quantity II

Hence, option E is correct.

- 13. Quantity I:**

$$X^2 + \sqrt{3}X - 60 = 0$$

$$X^2 + 5\sqrt{3}X - 4\sqrt{3}X - 60 = 0$$

$$X(X + 5\sqrt{3}) - 4\sqrt{3}(X + 5\sqrt{3}) = 0$$

$$(X + 5\sqrt{3})(X - 4\sqrt{3}) = 0$$

$$X = -5\sqrt{3}, 4\sqrt{3}$$



**Quantity II:**

$$Y^2 + 7\sqrt{2}Y + 20 = 0$$

$$Y^2 + 5\sqrt{2}Y + 2\sqrt{2}Y + 20 = 0$$

$$Y(Y + 5\sqrt{2}) + 2\sqrt{2}(Y + 5\sqrt{2}) = 0$$

$$(Y + 2\sqrt{2})(Y + 5\sqrt{2}) = 0$$

$$Y = -5\sqrt{2}, -2\sqrt{2}$$

For  $x = -5\sqrt{3}$ , and  $y = -5\sqrt{2}$ ,  $x < y$

For  $x = -5\sqrt{3}$ , and  $y = -2\sqrt{2}$ ,  $x < y$

For  $x = 4\sqrt{3}$ , and  $y = 5\sqrt{2}$ , or  $-2\sqrt{2}$ ,  $x > y$

Therefore, relationship can't be established

Hence, option E is correct.

14. Let A's income =  $4x$  then B's income =  $5x$

According to the question,  $5x - 4x = x = 10,000$

A's income =  $4x = 40,000$

B's income =  $5x = 50,000$

**Quantity I:** A's expenditure =  $(100 - 30)\%$  of  $40,000 = 70\%$  of  $40,000 = 28,000$

**Quantity II:** B's saving =  $(100 - 45)\%$  of  $50,000 = 55\%$  of  $50,000 = 27,500$

Therefore, Quantity I > Quantity II

Hence, option A is correct.

15. Let the efficiency of Q =  $5x$  then the efficiency of P =  $120\%$  of  $5x = 6x$

When they work together then the total units of work done by them in 30 days =  $(5x + 6x) \times 30 = 330x$  units

**Quantity I:** P's original efficiency =  $6x$

$$25\% \text{ of } 6x = 25 \times \frac{6x}{100} = 1.5x$$

$$\text{Two fifth of the work} = \frac{2}{5} \times 330x = 2 \times 66x$$

The number of days, it will complete at 25% of his efficiency

$$= \frac{2 \times 66x}{1.5x} = 88 \text{ days}$$

**Quantity II:** Q's original efficiency =  $5x$

$$40\% \text{ of } 5x = 40 \times \frac{5}{100} = 2x$$

$$\text{Half of the work} = \frac{330x}{2} = 165x$$

The number of days Q will take to do half of the work at 40% of his efficiency

$$= \frac{165x}{2x} = 82.5 \text{ days}$$

Therefore, Quantity I > Quantity II

Hence, option A is correct.

16. Let the speed of the stream =  $x$  km per hour

Then, the speed of the motorboat in still water =  $(100 + 50)\%$  of  $x = 600\%$  of  $x = 6x$  km per hour

According to the question,

$$\frac{1050}{6x - x} - \frac{1050}{6x + x} = 40$$

$$\frac{1050}{5x} - \frac{1050}{7x} = 40$$

$$\frac{1050 \times (7-5)}{35x} = 40$$

$$1050 \times 2 = 35x \times 40$$

By solving,  $x = 1.5$  km per hour

**Quantity I:**



$$\text{The reqd. time} = \frac{1050}{6x - x} = \frac{1050}{5x} = \frac{1050}{5 \times 1.5} = 140 \text{ hours}$$

**Quantity II:**

When the speed of stream was increased by 20% then the new speed of the stream = 120% of  $x = 1.2x = 1.2 \times 1.5 = 1.8$  km per hour

And the speed of the motorboat in downstream =  $6x + 1.8 = 9 + 1.8 = 10.8$  km per hour

The reqd. time =  $1500/10.8 =$  approximately 138.89 hours

Therefore, Quantity: I > Quantity: II

Hence, option A is correct.

17. Let the efficiency of a man =  $4x$  then the efficiency of a women =  $3x$

When a group of 2 men and 2 women together can complete a piece of work in 12 days then the total units of work done by them in 12 days

$$= 2 \times 4x \times 12 + 2 \times 3x \times 12 = 168x \text{ units}$$

**Quantity I:**

The efficiency of a group of a man and three women =  $4x + 3 \times 3x = 13x$

The reqd. number of days =  $\frac{168x}{13x} =$  approximately 13 days

**Quantity II:** If the efficiency of a men was increased by 20% and the efficiency of a women by 50% then the new efficiency of a man = 120% of  $4x = 4.8x$  and the new efficiency of a woman = 150% of  $3x = 4.5x$

The new efficiency of a man and a woman =  $4.8x + 4.5x = 9.3x$

75% of the work = 75% of  $168x = 126x$  units

The reqd. number of days =  $\frac{126x}{9.3x} = 13.54$  days approximately

Therefore, Quantity: I < Quantity: II

Alternate method: when work is same then efficiency is inversely proportional time. Compare according to that.

Hence, option C is correct.

18. Let the quantity of pure milk =  $3x$  litres then the quantity of water =  $2x$  litres = 5 litres

$$x = 2.5 \text{ litres}$$

Therefore, the quantity of pure milk =  $3x = 3 \times 2.5 = 7.5$  litres

**Quantity I:** In the mixture, when 1.5 litres of pure milk are added then the quantity of pure milk =  $7.5 + 1.5 = 9$  litres and the quantity of mixture =  $9 + 5 = 14$  litres

The concentration of milk =  $\frac{9 \times 100}{14} =$  approximately 64.28%

**Quantity II:** Instead of 5 litres of water, if 3.5 litres of water were added and the quantity of pure milk remained the same then the quantity of pure milk = 7.5 litres and the quantity of water = 3.5 litres

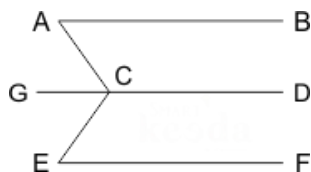
The quantity of mixture =  $7.5 + 3.5 = 11$  litres

The reqd. concentration =  $\frac{7.5 \times 100}{11} = 68.18\%$

Therefore, Quantity: I < Quantity: II

Hence, option C is correct.

19.



Here  $AB \parallel GD \parallel EF$  and  $AC = EC$  therefore, angle  $ACE =$  angle  $BAC = 30$  degrees = angle  $GCE$

Therefore, angle  $ACE = 30 + 30 = 60$  degrees

**Quantity I:** = 60 degrees

**Quantity II:** Since,  $AC = CE$  therefore, angle  $EAC$

$$= \text{angle } AEC = \frac{180 - 60}{2} = \frac{120}{2} = 60 \text{ degrees}$$

Therefore, Quantity: I = Quantity: II

Hence, option E is correct.

20. We know that, distance = speed  $\times$  time

$$(500 + 800) = s \times 130$$

$$1300 = s \times 130$$

$$S = 10 \text{ meters per second}$$

**Quantity I:** = 10 meters per second

**Quantity II:** 8 minutes 20 seconds = 500 seconds

Let the speed of the man =  $x$  m/sec then

$$500 = 500 \times (x - 10)$$

$$x = 11 \text{ meters per second}$$

Therefore, Quantity: I < Quantity: II

Hence, option C is correct.

21. Let the speed of the motorboat in still water =  $3a$  km/hr then the speed of the motorboat in stream =  $a$  km/hr

According to the question,  $3a - a = 2a = 4$

$$a = 2 \text{ km/hr}$$

the speed of the motorboat in still water =  $3a$  km/hr = 6 km/hr

the speed of the motorboat in stream =  $a$  km/hr = 2 km per hour

Upstream speed =  $6 - 2 = 4$  km/hr

Downstream speed =  $6 + 2 = 8$  km per hour

$$\frac{x}{4} + \frac{x+20}{8} = 17.5$$

$$8x + 4x + 80 = 17.5 \times 32 = 560$$

$$12x = 560 - 80 = 480$$

$$x = 40$$

**Quantity I:** 40



**Quantity II:** Distance = speed  $\times$  time =  $\frac{8 \times 21}{4} = 42$  km

Therefore, Quantity I < Quantity II

Hence, option C is correct.

- 22.** Let A's efficiency =  $5x$  units then B's efficiency = 80% of  $5x = 4x$

Total work done by A and B together in 15 days =  $(5x + 4x) \times 15 = 9x \times 15 = 135x$  units

Quantity I:

50% of the work =  $\frac{135x}{2} = 67.5x$

First day, A will do  $5x$  units

2nd day, B will do  $4x$  units

In the first 2 days, i.e. in one cycle  $5x + 4x = 9x$  units

In 7 cycle i.e. 14 days  $9x \times 7 = 63x$  units

Remaining =  $67.5x - 63x = 4.5x$  units

That A will do in approximately 1 day

Total number of days =  $14 + 1 = 15$  days approximately

Quantity II: 40% of the work = 40% of  $135x$

=  $40 \times \frac{135x}{100} = 54x$

B alone will take,  $\frac{54x}{4x} = 13.5$  days

Therefore,  $Q1 > Q2$

Hence, option A is correct.

**23.** Let the speed of the car =  $x$  km per hr =  $x \times \frac{5}{18}$  m/s

The speed of the train =  $x + 5$  km/hr =  $(x + 5) \times \frac{5}{18}$  m/s

If they travel in opposite direction then the relative speed =  $(x + x + 5)$  km per hr

$$= (2x + 5) \times \frac{5}{18} \text{ m/s}$$

We know that, distance = speed  $\times$  time

$$500 = (2x + 5) \times \frac{5}{18} \times 90$$

$$2x + 5 = 20$$

$$x = 7.5 \text{ km per hour}$$

**Quantity I:**

The speed of the train =  $x + 5 = 12.5$  km per hr

**Quantity II:**

$$150\% \text{ of } 7.5 = \frac{150 \times 7.5}{100} = 11.25 \text{ km per hour}$$

Therefore, Quantity: I > Quantity: II

Hence, option A is correct.

**24.** Let the quantity of Ghee =  $10x$  litres then the quantity of Dalda =  $(100 - 40)\%$  of  $10x$   
=  $60\%$  of  $10x = 6x$  litres

When 5 litres of Ghee was added then the quantity of Ghee =  $10x + 5$  litres and the quantity of Dalda =  $6x$  litres

According to the question,

$$180\% \text{ of } 6x = (10x + 5)$$

$$10.8x = 10x + 5$$

$$0.8x = 5$$

$$8x = 50$$

$$x = 6.25 \text{ litres}$$

Quantity I:

$$\text{The quantity of Dalda} = 6x = 6 \times 6.25 = 37.5 \text{ litres}$$

Therefore, Quantity: I < Quantity: II

Hence, option C is correct.

- 25.** On 1st Jan 2018, the sum of the age of 5 members =  $45 \times 5 = 225$  years

$$\text{On 1st Jan 2019, the sum of the age of 4 members} = 32 \times 4 = 128 \text{ years}$$

$$\text{So, on 1st Jan 2018 the sum of the age of 4 members} = 31 \times 4 = 124 \text{ years}$$

$$\text{So, on 1st Jan 2018 the age of the person who died on 1st July 2018} = (225 - 124) = 101 \text{ years}$$

$$\text{The age of person when he died} = (101 + 0.5) = 101.5 \text{ years}$$

Therefore, Quantity: I > Quantity: II

Hence, option A is correct.

- 26.** Let the quantity of milk =  $2x$  litres then the quantity of water =  $yx$  litres

According to the question,

$$yx = 50\% \text{ of } (2x + yx + 4)$$

$$2yx = 2x + yx + 4$$

$$yx = 2x + 4 \dots\dots\dots (i)$$

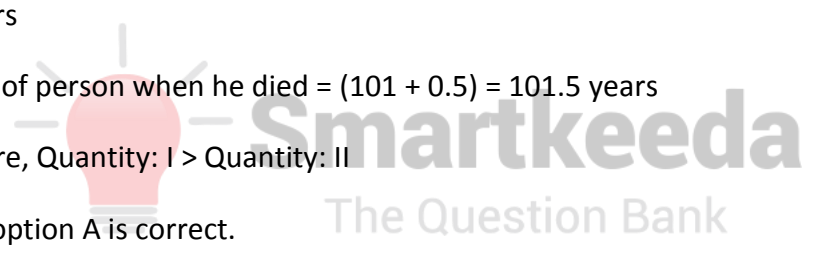
$$2x = 33.33\% \text{ of } (2x + yx + 4)$$

$$6x = 2x + yx + 4$$

$$yx = 4x - 4 \dots\dots\dots (ii)$$

From the equation (i) and (ii)

$$2x + 4 = 4x - 4$$



$$2x = 8$$

$$x = 4$$

Put the value of x in the equation (i)

$$y = 3$$

The quantity of mil in the original mixture =  $2x = 8$  litres and the quantity of water =  $yx = 3 \times 4 = 12$  litres

Quantity I: when, 5 litres of milk were added in the original mixture

$$\text{milk} = \frac{8 + 5}{12 + 8 + 5} = \frac{13}{25} \text{ part}$$

**Quantity II:** when 3 litres of water were added in the original mixture

$$\text{water} = \frac{12 + 3}{12 + 8 + 3} = \frac{15}{23}$$

Therefore, Quantity: I < Quantity: II,

Hence, option C is correct.

27. Quantity I:

$$x^2 - 10\sqrt{7}x + 168 = 0$$

$$x^2 - 4\sqrt{7}x - 6\sqrt{7}x + 168 = 0$$

$$x(x - 4\sqrt{7}) - 6\sqrt{7}(x - 4\sqrt{7}) = 0$$

$$(x - 4\sqrt{7})(x - 6\sqrt{7}) = 0$$

$$x = 4\sqrt{7}, 6\sqrt{7}$$

Quantity II:

$$y^2 - \sqrt{6}y - 72 = 0$$

$$y^2 + 3\sqrt{6}y - 4\sqrt{6}y - 72 = 0$$

$$y(y + 3\sqrt{6}) - 4\sqrt{6}(y + 3\sqrt{6}) = 0$$

$$(y + 3\sqrt{6})(y - 4\sqrt{6}) = 0$$



$$y = -3\sqrt{6}, 4\sqrt{6}$$

For  $x = 4\sqrt{7}$ , or  $6\sqrt{7}$  and  $y = -3\sqrt{6}$ , or  $4\sqrt{6}$   $x > y$

Therefore,  $x > y$

Hence, option A is correct.

**28.**  $AE = ED = \frac{8}{2} = 4 \text{ cm}$

$$AF = FB = \frac{12}{2} = 6 \text{ cm}$$

$$\text{Area of BFC} = \frac{1}{2} \times 8 \times 6 = 24 \text{ sq. cm}$$

$$\text{Area of ACB} = \frac{1}{2} \times 12 \times 8 = 48 \text{ sq. cm}$$

$$\text{Area of DEC} = \frac{1}{2} \times 12 \times 4 = 24 \text{ sq. cm}$$

$$\text{Area of DAC} = \frac{1}{2} \times 12 \times 8 = 48 \text{ sq. cm}$$

Quantity I: Area of shaded region = area of DEC + area of acf =  $24 + (48 - 24) = 48$  sq. cm

Quantity II: Area of unshaded region = area of rectangle – area of shaded region =  $96 - 48 = 48$  sq. cm

Therefore, Quantity I = Quantity II

Hence, option E is correct.

**29.** The ratio of the efficiency of A and B = 5 : 4

The total units of work = 100 units then the number of days, A will take

$$= \frac{100}{5} = 20 \text{ days}$$

and the number of days, B will take

$$= \frac{100}{4} = 25 \text{ days}$$

**Quantity I:** 75% of the work = 75% of 100 = 75 units

The number of days, B alone will take =  $\frac{75}{4} = 18.75$  days

**Quantity II:** 150% of the work = 150 units

The number of days, A and B together will take to complete

$$= \frac{150}{5+4} = \frac{150}{9} = 16.67 \text{ days}$$

Therefore, Quantity I > Quantity II

Hence, option A is correct.

**30. Quantity I:**

Suppose initially A had Rs. x

Then, amount received by B = Rs.  $(x/5)$

Amount remaining with A = Rs.  $x - \frac{x}{5} = \text{Rs. } \frac{4x}{5}$

Amount received by C = Rs.  $(\frac{1}{2} \times \frac{x}{5}) = \text{Rs. } \frac{x}{10}$

Since,  $(\frac{4x}{5} - \frac{x}{10}) = 700$

$$\Rightarrow 7x = 700 \times 10$$

$$\Rightarrow x = 1000$$

Hence, amount received by B =  $\frac{x}{5} = \text{Rs. } 200$

**Quantity II:** Rs 250

Here we can see Quantity II is more than Quantity I,

Hence option C is right answer.

**31.** The quantity of acid =  $\frac{80 \times 3}{8} = 30$  litres

$$\text{The quantity of Water} = \frac{80 \times 5}{8} = 50 \text{ litres}$$

When half of the solution was withdrawn then acid and water would be withdrawn in the same ratio

$$\text{The remaining quantity of acid} = \frac{30}{2} = 15 \text{ litres}$$

$$\text{And the remaining quantity of water} = \frac{50}{2} = 25 \text{ litres}$$

Now, in the same quantity a new solution x of acid and water was added then the ratio become 1: 1

It means, Acid = 40 litres and water = 40 litres

The quantity of acid in the new solution x = 40 – 15 = 25 litres

The quantity of water in the new solution = 40 – 25 = 15 litres

$$\text{The reqd. \%} = \frac{25 \times 100}{40} = \frac{250}{4} = 62.5\%$$

Hence, option A is correct.

**32.** According to the question,

$$A - B = B - C$$

$$2B = A + C \text{ ----- (i)}$$

$$\text{And } A + B + C = 45 \times 3 = 135 \text{ years ----- (ii)}$$

Solve this equation or we can say that the age of A, B, and C are in arithmetic progression

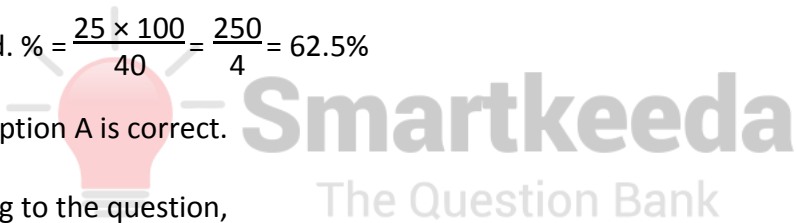
Were let the common difference = D then

The age of three members X – D, X, X + D years

$$X - D + X + X + D = 45 \times 3$$

$$3X = 45 \times 3$$

$$X = 45 \text{ years}$$



The age of eldest member =  $X + D = 45 + D = 60$

$D = 15$  years

Quantity I: The age of smallest member of the family =  $45 - d = 45 - 15 = 30$  years

Quantity II: 14 years ago, Smallest Member's age =  $30 - 14 = 16$  years

And Eldest member's age =  $60 - 14 = 46$  years

The sum =  $16 + 46 = 62$  years

The reqd. average =  $\frac{62}{2} = 31$  years

Therefore, Quantity: I < Quantity: II

Hence, option C is correct.

**33.** Quantity I: Let the number of girls =  $x$  and the number of boys =  $y$  then

50% of  $x = 30\%$  of  $y$

$$5x = 3y$$

$$x : y = \frac{3}{5}$$

$x =$  number of girls =  $3a$  then  $y =$  number of boys =  $5a$

$$\text{The reqd. \%} = \frac{3a \times 100}{8a} = \frac{300}{8} = 37.5\%$$

Quantity II:

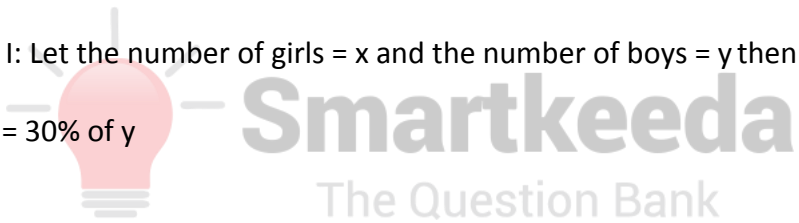
Let the number of girls =  $x$  and the number of boys =  $y$  then

33.33% of  $x = 66.67\%$  of  $y$

$$x = 2y$$

$$x : y = 2 : 1$$

$x =$  number of girls =  $2a$  then  $y =$  number of boys =  $a$





$$\text{The reqd. \%} = \frac{2a \times 100}{3a} = 66.67 \%$$

Therefore, Quantity: I < Quantity: II

Hence, option C is correct.

**34.** 54 km per hour =  $\frac{54 \times 5}{18} = 15$  meters per second

Quantity I: The length of the train =  $15 \times 16 = 240$  meters

$$\text{Quantity II: } 72 \text{ km per hour} = \frac{72 \times 5}{18} = 20 \text{ meters per second}$$

Let the length of the platform =  $y$  meters then

$$(240 + y) = 20 \times 24 = 480$$

$$y = 480 - 240 = 240 \text{ meters}$$

Therefore, Quantity: I = Quantity: II

Hence, option E is correct.

**35.** Quantity I: Let the quantity of water in the cask =  $x$  litres then

$$x - 10 + 30 = x + 20 \text{ litres} = \text{quantity of mixture}$$

The quantity of milk in  $x + 20$  litres = 30 litres

According to the question,

$$20\% \text{ of } (x + 20) = 30$$

$$x + 20 = 150$$

$$x = 130 \text{ litres}$$

And the quantity of mixture =  $x + 20 = 150$  litres

The quantity of water =  $x - 10 = 120$  litres



In 1 litre mixture, the quantity of water =  $\frac{120}{150}$  litres

In  $y$  litres mixture, the quantity of water =  $\frac{12y}{15}$  litres

Now, let  $y$  litres of mixtures was replaced with 10 litres of milk

Then, the quantity of mixture =  $150 - y + 10 = 160 - y$  litres

$$60\% \text{ of } (160 - y) = 120 - \frac{12y}{15}$$

$$96 - 0.6y = 120 - 0.8y$$

$$0.2y = 24$$

$$y = 120$$

Quantity II: 130 litres

Therefore, Quantity: I < Quantity: II

Hence, option C is correct.



- 36.** Quantity I: half of the work in 10 days therefore, the complete work in  $10 \times 2 = 20$  days

$$\frac{1}{x} + \frac{1}{3x} = \frac{1}{20}$$

$$4 \times 20 = 3x$$

$$x = \frac{80}{3} \text{ days}$$

Quantity II: Let P's efficiency =  $a$  then 40% of  $a = 0.4a$

half of the work in 31.25 days then the complete work in  $31.25 \times 2 = 62.5$  days

at  $0.4a$  efficiency he does in 62.5 days

Total work =  $62.5 \times 0.4a = 25a$  units

then, at a efficiency he will do in  $25a/a = 25$  days

Therefore, Quantity: I > Quantity: II

Hence, option A is correct.

- 37.** The sum of the age of 5 boys =  $22.5 \times 5 = 112.5$  kg

The sum of the weight of 3 girls =  $22.5 \times \frac{3}{2} = 33.75$  kg

The sum of the weight of 5 boys and 3 girls =  $112.5 + 33.75 = 146.25$  kg

Quantity I:

The reqd. average =  $\frac{146.25}{8} =$  approximately 18 Kg.

Therefore, Quantity: I < Quantity: II

Hence, option C is correct.

- 38.** The distance travelled by X in first 3 hours

=  $3 \times 24 = 72$  km The relative speed of X and Y

=  $40 - 24 = 16$  km per hour Distance

= speed  $\times$  time  $72 = 16 \times y$

= 4.5 hours It means after 4.5 hours the motorcyclist Y meets X.

Quantity I:

The total time taken by P to go and return immediately

=  $3 + 4.5 + 3 + 4.5$

= 15 hours

Therefore, Quantity: I = Quantity: II

Hence, option E is correct.

39. Quantity I:

$$x^2 + x - 56 = 0$$

$$x^2 + 8x - 7x - 56$$

$$= 0 \ x(x + 8) - 7(x + 8)$$

$$= 0 \ (x + 8)(x - 7) = 0 \ x$$

$$= -8, 7$$

Quantity II:

$$2y^2 - 17y + 21$$

$$= 0 \ 2y^2 - 14y - 3y + 21$$

$$= 0 \ 2y(y - 7) - 3(y - 7)$$

$$= 0 \ (y - 7)(2y - 3)$$

$$= 0 \ y = 7, 3/2$$

For,  $x = 7$  and  $y = 3/2$

$x > y$  But for  $x = -8$  and  $y = 3/2$

$x < y$

Clearly, one value of  $y$  is lying between two values of  $x$ .

Therefore, relationship can't be established

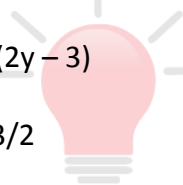
Hence, option E is correct.

40. The monthly expenditures of a man on travelling is 40% less than that on food The ratio of expenditures on travelling:

food

= 3: 5 Let on travelling

=  $3x$  then on food =  $5x$



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The difference =  $5x - 3x = 2x = 10\%$  of his monthly salary

Quantity I:  $3x = 1200$   $x = 400$   $2x = 800 = 10\%$  of his monthly salary

$$\text{Monthly salary} = \frac{800 \times 100}{10} = 8000$$

Quantity II: Monthly salary

= 25000 10% of 2500

= 2500

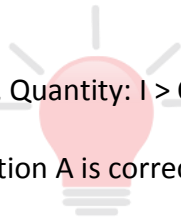
= 2x The expenditures on food

=  $5x = 1250 \times 5$

= 6250

Therefore, Quantity: I > Quantity: II

Hence, option A is correct.



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**41.** Quantity I:

Find the amount on compound interest on a sum of Rs.55000 at the rate of 15% per annum after three years.

$$\text{Reqd. amt.} = 55000 \times \frac{115}{100} \times \frac{115}{100} \times \frac{115}{100} = \text{Rs. } 83648.125$$

Quantity II:

Find the simple interest on a sum of Rs.60000 at the rate 25% per annum after 5.5 years.

$$\text{Reqd. SI} = \frac{60000 \times 25 \times 5.5}{100} = \text{Rs. } 82500$$

Hence, Quantity I > Quantity II

Hence, option A is correct.

42. Quantity I:

Number of letters in 'KNIFE' = 5

Number of vowels in 'KNIFE' = 2

$$\text{Reqd. Probability} = \frac{2}{5}$$

Quantity II:

Total number of balls in bag =  $10 + 8 = 18$

Number of way in which 2 balls can be drawn =  ${}^{18}C_2$

Number of ways in which 2 blue balls can drawn =  ${}^8C_2$

$$\text{Reqd. Probability} = \frac{{}^8C_2}{{}^{18}C_2}$$

$$= \frac{\frac{8 \times 7}{2}}{\frac{18 \times 17}{2}} = \frac{28}{153}$$



Here,

Quantity I > Quantity II

Hence, option A is correct.

43. Quantity I:

Let the length of the rectangular park is L.

then,

$$\text{Breadth} = \frac{\text{length}}{4} = \frac{L}{4}$$

$$\text{So, area of the park} = \frac{L^2}{4}$$

And, area of fountain =  $\frac{1}{4}$  (Area of park)

$$\Rightarrow 900 = \frac{1}{4} \times \frac{L^2}{4}$$

$$\Rightarrow L^2 = 16 \times 900$$

$$\Rightarrow L = 4 \times 30 = 120$$

Here,

the breadth of park is =  $\frac{120}{4} = 30$  m

Quantity II:

Let the side of the square be x metres

then,

Area of square =  $x^2$  sq.m

Since, the square is made by decreasing the length of rectangle.

So, the length of the rectangle be equal to the side of square plus the value decreased.

$$\text{length} = (x + 8) \text{ m}$$

As, there is no change in breadth.

So breadth = x m

we have

$$\Rightarrow \frac{x + 8}{x} = \frac{5}{3}$$

$$\Rightarrow 3x + 24 = 5x$$

$$\therefore x = 12$$

then area of square =  $144 \text{ m}^2$

Here, Quantity I < Quantity II

Hence, option C is correct.

44. Quantity I: There are 7 white, 4 green, 3 yellow and 6 black balls in a bag. Four balls are drawn at random. Find the probability that all the balls are of different colours.

White = 7

Green = 4

Yellow = 3

Black = 6

Total = 20

$$\begin{aligned} \text{Reqd. probability} &= \frac{{}^7C_1 \times {}^4C_1 \times {}^3C_1 \times {}^6C_1}{{}^{20}C_4} \\ &= \frac{7 \times 4 \times 3 \times 6}{4845} = \frac{168}{1615} \end{aligned}$$

Quantity II: There are 3 red, 5 green and 6 white balls in a bag. Three balls are drawn at random. Find the probability that all the balls are of same colour.

Red = 3

Green = 5

White = 6

Total = 14

$$\begin{aligned} \text{Reqd. probability} &= \frac{{}^3C_3 + {}^5C_3 + {}^6C_3}{{}^{14}C_3} \\ &= \frac{1 + 10 + 20}{364} = \frac{31}{364} \end{aligned}$$

Hence, Quantity I > Quantity II

Hence, option A is correct.



45. Quantity I:

Let the speed of the motorboat in still water =  $x$  km per hour

and the speed of the stream =  $y$  km per hour

then, according to the question,  $x - y$

= 75% of  $x$

$$25x = 100y$$

$$\frac{x}{y} = 4:1$$

$$\text{The reqd. \%} = \frac{1 \times 100}{4} = 25\%$$

Quantity II:

Let the sum of money =  $x$

then,

$$x + x \times 8 \times \frac{r}{100} = 3x$$

$$x \times 8 \times \frac{r}{100} = 2x$$

$$R = \frac{200}{8} = 25\%$$

Therefore,  $q1 = q2$

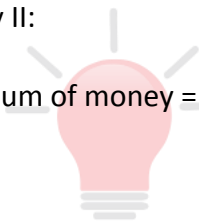
Hence, option E is correct.

46. Quantity I:

Let the efficiency of Mohan =  $3x$

then the efficiency of Ram = 66.67% of  $3x = 2x$

Ram can do the work in 20 days



then the total units of work =  $20 \times 2x = 40x$  units

The efficiency of Mohan is 25% less than the efficiency of Prakash and the efficiency of Mohan =  $3x$

Therefore, the efficiency of Prakash

$$= 3x \times \frac{100}{75} = 4x$$

The total time taken by Mohan to do  $40x$  units of work

$$= \frac{40x}{4x} = 10 \text{ days}$$

Quantity II:

The total number of pages typed in 1 hr

$$= \frac{50}{10} = 5 \text{ pages}$$

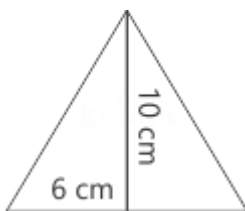
Therefore, the total time taken by the person to type 1320 pages

$$= \frac{1320}{5} = 264 \text{ hours}$$

$$= \frac{264}{24} = 11 \text{ days}$$

Hence, option C is correct.

47. Quantity I:



Equal sides will be  $\sqrt{10^2 + 6^2} = \sqrt{136}$

= approximately 11.66 cm

Therefore, Perimeter = 11.66 + 11.66 + 12

= 35.32 cm

Quantity II:

Diagonal of the square =  $8\sqrt{2}$  cm

= length of the rectangle

Circumradius = Diagonal/2

=  $(8\sqrt{2})/2$

=  $4\sqrt{2}$  cm

= breadth of the rectangle

Perimeter of the Rectangle

=  $2(\text{length} + \text{breadth})$

=  $2(8\sqrt{2} + 4\sqrt{2})$

=  $24\sqrt{2} = 24 \times 1.414$

= 33.94 cm approximately

Hence, option A is correct.

**48.** Quantity I:

Let the middle number is  $x$  and the common difference is  $d$  then

$$x - d + x + x + d = 104 \times 3$$

$$3x = 104 \times 3$$

$$X = \text{middle number} = 104$$

$$\text{Now, } x + d - x + d = 4$$



$$d = 2$$

$$\text{Therefore, largest number} = x + 2 = 104 + 2 = 106$$

Quantity II:

$$\text{The sum of the given 50 numbers} = 50 \times 125.5 = 6275$$

$$\text{When a student erases one of the numbers the sum becomes } 125.9 \times 49 = 6169.1$$

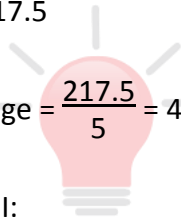
$$\text{It means, the number, student had erased} = 6275 - 6169.1 = 105.9$$

Hence, option A is correct.

49. Quantity I:

$$\text{The sum of the age of 5 students who left the school} = 37.5 \times 17 - 35 \times 12 = 637.5 - 420 = 217.5$$

$$\text{The average} = \frac{217.5}{5} = 43.5$$



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Quantity II:

$$\text{The quantity of milk in the solution} = 60\% \text{ of } 160 = 96 \text{ litres and the quantity of water} = 64 \text{ litres}$$

$$\text{Let } x \text{ litres of water was added in 160 litres solution, } (160 + x) \times 47.29\% = 96$$

$$47.29x = 9600 - 160 \times 47.29 = 2033.6$$

$$x = \frac{2033.6}{47.29} = \text{approximately } 43$$

Hence, option A is correct.

50. Let the length of platform is  $x$  meters and the speed of the train is  $y$  m per sec

$$\text{Then, distance} = \text{speed} \times \text{time} = (200 + x) = y \times 10 \text{ ----- (i)}$$

$$\text{Again, when he increases his speed by 25\% then the new speed} = 125\% \text{ of } y = 1.25y$$

$$1.25y \times 3.2 = \text{length of train} = 200$$

Therefore,  $y = 50$  m per sec

Put the value of  $y$  in the equation (i),  $x =$  length of platform = 300 meters

Quantity II: They are running towards each other then the relative speed =  $12 + 18$   
= 30 km per hour

$$= 30 \times \frac{5}{18} = \frac{25}{3} \text{ m/sec.}$$

After 30 seconds of starting, the distance between them is 750 meters

Therefore, the total distance travelled by them in the first 30 sec

$$= 25 \times \frac{30}{3} = 250 \text{ m}$$

The total distance between them in the starting =  $750 + 250 = 1000$  m

The total distance travelled by them in 81 sec

$$= 81 \times \frac{25}{3} = 675 \text{ m}$$

The distance between them after 81 sec of starting =  $1000 - 675 = 325$  m

Hence, option C is correct.

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