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Maths Inequalities Questions for SBI Clerk Mains, IBPS Clerk Mains, SBI PO Pre and IBPS PO Pre Exams.

Maths Inequalities Quiz 16

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 :** A 300 m long train crosses a 150 m long tunnel at the speed of 108 km/h, then what is the time taken by the train to cross the tunnel?

Quantity II : Train A of length 360 m crosses a pole in 18 seconds. What is the time taken by train B of length 340 m coming from the opposite direction running at the speed of 30m/s to cross the running train A?

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

2. (P – 8) men can complete a piece of work in 2Q days and (P + 10) men can complete the same piece of work in Q days.

Quantity I : The value of P

Quantity II : The value of Q

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

3. Odin divided Rs.1301 between his two sons Thor and Loki. He divided, so that the amount received by Thor after 7 years is equal to the amount received by Loki after 9 years at the rate of 4% per annum compounded annually.

Quantity I : Share of Thor

Quantity II : Share of Loki

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

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4. **Quantity I :** The length, breath and height of a room is 14 m, 13 m and 13 m respectively. The walls and the ceiling of the room require painting. Find the area which requires painting.

Quantity II : The radius and height of the cylindrical pipe are 14 cm and 10.5 cm respectively. Find the curved surface area of the pipe.

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

5. **Quantity I :** Find the interest earned after 3 years, if a person invests Rs. 52000 at C.I. at the rate of 10% per annum.

Quantity II : Find the interest earned after 3 years, if a person invests Rs. 28750 at S.I. at the rate of 20% per annum.

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

6. Yuri Gagarin is a traveller. He covered 120 km of a journey by motorcycle, 450 km by train and 60 km by car. The whole journey took 13. 5 hours. Speed of the train is 3 times that of the car and 1. 5 times that of the motorcycle.

Quantity I : Time taken by train to cover 1200 km.

Quantity II : Time taken by motorcycle to cover 1000 km.

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

7. Jaimohan purchases 5 Camels and 10 Horses for Rs. 10000 from Pushkar cattle fair. He sold the Horses at 10% loss and the Camels at 15% profit. He gets an overall profit of Rs. 375.

Quantity I : Cost price of 12 Camels

Quantity II : Cost price of 31 Horses.

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

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8. **Quantity I :** The area of a rectangle PQRS decreases by 30 m2, if the breadth is increased by 2 m and the length is decreased by 5 m. If the area of the given rectangle is 150 m2, find the perimeter of the square whose sides are equal to the length of the rectangle.

Quantity II : 60 m

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

9. **Quantity I :** Rs. 5000 becomes Rs. 6200 in 4 years at a certain simple rate of interest. If the rate of interest is doubled, what amount will Rs. 5000 become in 3 years?

Quantity II : Deepak invested two equal amounts in two different schemes at 8% and 12% per annum rate of interest. At the end of the year, the total interest earned is Rs. 2200. Find the invested amount in each part.

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

10. **Quantity I :** Logan is elder than Magneto. Magneto is 20 years elder than Ethan and the present age of Ethan is 16 years. Find the present age of Logan.

Quantity II : The ratio of the present ages of Jackman and his father is 7 : 22. 4 years ago, the ratio was 1: 4. Find the present age of Jackman's father.

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

Correct Answers:

1	2	3	4	5	6	7	8	9	10
A	E	A	C	C	C	C	E	C	E

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Explanations:

1. **Quantity I :**

Speed of train in m/s = $\frac{108 \times 5}{18}$ = 30 m/s

Time taken to cross the tunnel `= $\frac{300 + 150}{30} = \frac{450}{30}$ = 15 seconds

Quantity II :

Speed of train A = $\frac{360}{18}$ = 20 m/s

Time taken to cross each other = $\frac{360 + 340}{20 + 30} = \frac{700}{50}$ = 14 seconds

Quantity I > Quantity II

Hence, option A is correct.

2. As the time is becoming one half so means number of people have doubled;
∴ (P + 10) = 2 × (P – 8)
⇒ P = 26
By M1 × D1 = M2 × D2, the value of Q cannot be determined. Q can take any value.
∴ We cannot determine a unique value of Q
Hence, option E is correct.

3. Let the share of Thor and Loki be Rs. x and Rs. (1301 – x) respectively.

Then, according to the question,

$\Rightarrow x\left(1 + \frac{4}{100}\right)^{7} = (1301 - x)\left(1 + \frac{4}{100}\right)^{9}$

$\Rightarrow \frac{x}{(1301 - x)} = \left(1 + \frac{4}{100}\right)^{2} = \left(\frac{26}{25} \times \frac{26}{25}\right)$

⇒ 625x = 676(1301 – x)
⇒ 1301x = 676 × 1301
⇒ x = 676
∴ Share of Loki = (1301 – 676) = Rs. 625

∴ Quantity I > Quantity II

Hence, option A is correct.

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4. **Quantity I :**

Area of the ceiling of a room = 14 m × 13 m = 182 m^2

Area of the 4 walls of the room = 2 × height × (length + breadth) = 2 × 13 m × (14 m + 13 m) = 702 m^2

Therefore, the total required area to be painted = (182 + 702) m^2 = 884 m^2

Quantity II:

Curved surface area of a cylinder = $2\pi rh = 2 \times \frac{22}{7} \times 14 \times 10.5 = 924\ cm^2$

∴ Quantity I < Quantity II

Hence, option C is correct.

5. **Quantity I :**

Compound interest = $52000 \times [(1.1)^3 - 1)$ = Rs. 17212

Quantity II:

Simple interest = $\frac{28750 \times 3 \times 20}{100}$ = Rs. 17250

∴ Quantity I < Quantity II

Hence, option C is correct.

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6. Let the speed of car = s km / h

Then speed of train = 3s km/h and speed of the motorcycle = 2s km / h

Now, according to the question,

$\Rightarrow \frac{120}{2x} + \frac{450}{3x} + \frac{60}{s} = 13.5$

$\Rightarrow \frac{360 + 900 + 360}{6s} = 13.5$

After solving,

⇒ s = 20

∴ Speed of the train = 3s = 60 km / h

Speed of motorcycle = 2s = 40 km / h

Quantity I : Time taken by train = 1200 / 60 = 20 hr

Quantity II : Time taken by motorcycle = 1000 / 40 = 25 hr

∴ Quantity I < Quantity II

Hence, option C is correct.

7. Let the cost of one Camel be Rs x,

Total selling price = $5x \times \frac{115}{100} + (10000 - 5x) \times \frac{90}{100} = 10375$

$\Rightarrow 575x + 90 \times 10000 - 450x = 10375 \times 100$

$\Rightarrow 125x = 137500$

$\Rightarrow x = 137500 / 125 = 1100$

$\therefore$ Cost price of 12 Camels = 1100×12 = Rs. 13200

$\therefore$ Cost price of one Horse = $(10{,}000 - 5 \times 1100) / 10$ = Rs. 450

So, cost price of 31 Horses = 31×450 = Rs. 13950

$\therefore$ Quantity I < Quantity II

Hence, option C is correct.

8. Let the length and breadth of rectangle be L and B respectively.

According to the question,

$\Rightarrow L \times B = 150$ .... (1)

$\Rightarrow (L - 5) \times (B + 2) = 120$ .... (2)

After solving these two equations,

$\Rightarrow L = 15$ m

$\therefore$ Perimeter = $4 \times 15 = 60$ m

$\therefore$ Quantity I = Quantity II

Hence, option E is correct.

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9. **Quantity I :** Principal = Rs. 5000, Amount = Rs. 6200, Interest = Rs. 1200

Time = 4 years

$\text{Rate} = \frac{1200 \times 100}{5000 \times 4} = 6\%$

New Rate = 12%

$\text{Interest} = \frac{5000 \times 12 \times 3}{100} = \text{Rs. } 1800$

Amount = Rs. (5000+1800) = Rs. 6800

Quantity II : Let Principal invested in each scheme is Rs. x

Rate (1) = 8%
Rate (2) = 12%
Interest = 2200
Time = 1 year

$\text{So, } \frac{x \times 8 \times 1}{100} + \frac{x \times 12 \times 1}{100} = 2200$

x = 11000

Therefore, Quantity I < Quantity II

Hence, option C is correct.

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10. **Quantity I :** Present age of Ethan = 16 years

Age of Magneto = (20 + 16) = 36 years

Logan is elder than Magneto.

∴ So age of Logan is greater than 36 years but we cannot conclude the exact age.

Quantity II : Let the age of Jackman and his father be '7x' and '22x' years respectively

$\therefore \frac{7x - 4}{22x - 4} = \frac{1}{4}$

$\Rightarrow 28x - 16 = 22x - 4$

$\Rightarrow x = 2$

Age of Jackman's father = 22 × 2 = 44 years

∴ Quantity I = Quantity II or No relation

Hence, option E is correct.


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