

**QUADRATIC EQUATIONS/QUANTITY BASED QUESTIONS**

**DIRECTION (1-35):- Two equations I and II are given in each question. On the basis of these equations decide the relation between x and y**

1. I.  $5x^2 + 27x + 10 = 0$

II.  $2y^2 + 11y + 12 = 0$

1.  $x > y$  2.  $x < y$

3.  $x \leq y$  4.  $x \geq y$

5.  $x = y$  or no relationship could be established

2. I.  $x^3 - 538 = 793$

II.  $y^3 - 358 = 642$

1.  $x > y$  2.  $x < y$

3.  $x \leq y$  4.  $x \geq y$

5.  $x = y$  or no relationship could be established

3. I.  $x^2 - 12x + 32 = 0$

II.  $y^2 - 7y + 12 = 0$

1.  $x > y$  2.  $x < y$

3.  $x \leq y$  4.  $x \geq y$

5.  $x = y$  or no relationship could be established

4. I.  $6x^2 + 29x + 35 = 0$

II.  $7y^2 - 23y - 30 = 0$

1.  $x > y$  2.  $x < y$

3.  $x \geq y$  4.  $x \leq y$

5.  $x = y$  or relation cannot be established

5. I.  $6x^2 + 29x + 35 = 0$

II.  $81y^2 - 72y + 15 = 0$

1.  $x > y$  2.  $x < y$

3.  $x \geq y$  4.  $x \leq y$

5.  $x = y$  or relation cannot be established

6. I.  $a^2 - 51a + 650 = 0$

II.  $b^2 - 53b + 702 = 0$

1.  $a < b$

2.  $a > b$

3.  $a = b$  or the relationship cannot be determined

4.  $a \geq b$

5.  $a \leq b$

7. I.  $a^2 - 27a + 152 = 0$

II.  $b^2 - 13b + 42 = 0$

1.  $a < b$

2.  $a > b$

3.  $a = b$  or the relationship cannot be determined

4.  $a \geq b$

5.  $a \leq b$

8. I.  $a^2 - a - 156 = 0$

II.  $b^2 - b - 210 = 0$

1.  $a < b$

2.  $a > b$

3.  $a = b$  or the relationship cannot be determined

4.  $a \geq b$

5.  $a \leq b$

9. I.  $x^2 + 5x + 6 = 0$

II.  $y^2 - 18y + 45 = 0$

1. If  $x > y$

2. If  $x \geq y$

3. If  $x < y$

4. If  $x \leq y$

5. If  $x = y$  or relationship between x and y cannot be established

10. I.  $2x^2 - 15x + 25 = 0$

II.  $3y^2 + 4y - 4 = 0$

1. If  $x > y$

2. If  $x \geq y$

3. If  $x < y$

4. If  $x \leq y$

5. If  $x = y$  or relationship between x and y cannot be established

11. I.  $2x^2 + 9x + 10 = 0$

II.  $3y^2 + 20y + 33 = 0$

1. If  $x > y$

2. If  $x < y$

3. If  $x \geq y$

4. If  $x \leq y$

5. If  $x = y$  or relationship between x and y cannot be established

12. I.  $3x^2 + x - 30 = 0$

II.  $3y^2 + 4y - 4 = 0$

1. If  $x > y$

2. If  $x < y$

3. If  $x \geq y$

4. If  $x \leq y$

5. If  $x = y$  or relationship between x and y cannot be established

13. I.  $3x^2 + 16x + 20 = 0$

II.  $3y^2 - 5y - 8 = 0$

1. If  $x > y$

2. If  $x < y$

3. If  $x \geq y$

4. If  $x \leq y$

5. If  $x = y$  or relationship between x and y cannot be established

14. I.  $3x^2 + 2x - 8 = 0$

II.  $3y^2 - 14y + 16 = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5.  $x = y$  or relation cannot be established

15. I.  $x^2 - 19x + 84 = 0$

II.  $y^2 - 25y + 156 = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5.  $x = y$  or relation cannot be established

16. I.  $55x^2 - 495x + 1100 = 0$

II.  $5y^2 + 10y - 120 = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5.  $x = y$  or relation cannot be established

17. I.  $x^2 + 4x + 4 = 0$

II.  $y^2 + 7y + 12 = 0$

1.  $x < y$

2.  $x > y$

3.  $x \leq y$

4.  $x \geq y$

5.  $x = y$  or no relation is obtained

18. I.  $x^2 - x - 6 = 0$

II.  $y^2 + 2y - 3 = 0$

1.  $x < y$

2.  $x > y$

3.  $x \leq y$

4.  $x \geq y$

5.  $x = y$  or no relation is obtained

19. I.  $x^2 + 3x + 2 = 0$

II.  $y^2 - y - 2 = 0$

1.  $x < y$

2.  $x > y$

3.  $x \leq y$

4.  $x \geq y$

5.  $x = y$  or no relation is obtained

20. I.  $x^2 + 2x - 8 = 0$

II.  $y^2 + 8y + 16 = 0$

1.  $x < y$

2.  $x > y$

3.  $x \leq y$

4.  $x \geq y$

5.  $x = y$  or no relation is obtained

21. I.  $3x^2 - 13x + 12 = 0$

II.  $2y^2 - 15y + 28 = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5. Relation cannot be established

22. I.  $2x^2 - 11x + 15 = 0$

II.  $2y^2 - 11y + 14 = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5. Relation cannot be established

23. I.  $3x^2 - 14x + 15 = 0$

II.  $15y^2 - 34y + 15 = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5. Relation cannot be established

24. I.  $3x^2 - 19x + 28 = 0$

II.  $5y^2 - 18y + 16 = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5. Relation cannot be established

25. I.  $x^2 + 13x = -42$

II.  $y^2 + 16y + 63 = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5. Relation cannot be established

26. I.  $\frac{9}{\sqrt{x}} + \frac{19}{\sqrt{x}} = \sqrt{x}$

II.  $\sqrt{2}y^2 + 7\sqrt{2}y + 12\sqrt{2} = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5.  $x = y$  or relation cannot be established

27. I.  $2401p^2 = p^{-2}$

II.  $7(p+q) = 2$

1.  $p > q$

2.  $p < q$

3.  $p \geq q$

4.  $p \leq q$

5.  $p = q$  or relation cannot be established

28. I.  $x = \sqrt{6.76}$

II.  $y = \sqrt{13.69}$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5.  $x = y$  or relation cannot be established

29. I.  $4x^4 = \frac{128}{x}$

II.  $\sqrt{y} + \frac{15y}{\sqrt{y}} = 4y^{\frac{5}{2}}$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5.  $x = y$  or relation cannot be established

30. I.  $x^3 - 468 = 1729$

II.  $y^2 - 1733 + 1564 = 0$

1.  $x > y$

2.  $x < y$

3.  $x \geq y$

4.  $x \leq y$

5.  $x = y$  or relation cannot be established

31. I.  $x^2 + 7x - 294 = 0$

II.  $y^2 + 43y + 241 = 0$

1.  $x < y$

2.  $x > y$

3.  $x = y$  or the relationship cannot be determined

4.  $x \geq y$

5.  $x \leq y$

32. I.  $49x^2 - 84x + 36 = 0$

II.  $25y^2 - 30y + 9 = 0$

1.  $x < y$

2.  $x > y$

3.  $x = y$  or the relationship cannot be determined

4.  $x \geq y$

5.  $x \leq y$

33. I.  $9x^2 - 9x + 2 = 0$

II.  $18y^2 + 3y = 1$

1.  $x < y$

2.  $x > y$

3.  $x = y$  or the relationship cannot be determined

4.  $x \geq y$

5.  $x \leq y$

34. I.  $10x^2 - 14.3x - 24.3 = 0$

II.  $4.5y^2 - 13.5y - 486 = 0$

1.  $x < y$

2.  $x > y$

3.  $x \geq y$

4.  $x \leq y$

5.  $x = y$  or the relationship cannot be determined

35. I.  $\frac{5}{x} + \frac{11}{x} = x$

II.  $\frac{23}{y} + \frac{2}{y} = y$

1.  $x < y$

2.  $x > y$

3.  $x = y$  or the relationship cannot be determined

4.  $x \geq y$

5.  $x \leq y$

**DIRECTION (36-45):-** In the given questions, two quantities are given, one as 'Quantity I' and another as 'Quantity II'. You have to determine relationship between two quantities and choose the appropriate option.

36. I. A man invested in the ratio of 8 : 11 in two schemes 'A' & B. Scheme 'A' offered compound interest, while scheme 'B' offered simple interest.

**Quantity I** - Amount invested in scheme 'B'.

If rate of interest offered in scheme 'A' & 'B' was 20% p.a. and 16% p.a. respectively and the man got Rs. 3520 as total interest from both schemes after two years.

**Quantity II** - Amount invested by man in scheme 'A'.

If rate of interest offered in scheme 'A' & 'B' was 10% p.a. and 20% p.a. respectively and man got Rs. 1870 more as interest from scheme 'B' as compared to A after two years.

(1) Quantity I > Quantity II

(2) Quantity I < Quantity II

(3) Quantity I  $\geq$  Quantity II

(4) Quantity I  $\leq$  Quantity II

(5) Quantity I = Quantity II or no relation

37. A bag contains 9 yellow balls, Y green balls and 7 red balls, if one ball is drawn at random from bag probability of it being green is 5/21.

**Quantity I** - The probability that at least one of the fruits is apple when, two fruits are taken out from bucket P without replacement.

Bucket 'P' contains 2Y apple, 3(Y - 2) banana & 1.5(Y - 1) orange.

**Quantity II** – The probability that both of the dice are of same color, when two dice are taken out from bucket Q without replacement.

Bag 'Q' contains 4 red dice,  $3.5(Y - 3)$  green dice and  $2Y$  yellow dice

- (1) Quantity I > Quantity II                      (2) Quantity I < Quantity II  
(3) Quantity I ≥ Quantity II                    (4) Quantity I ≤ Quantity II  
(5) Quantity I = Quantity II or no relation

**38.** Two vessel A & B contains mixture of milk & water in the quantity of  $(X + 54)l$  and  $(X + 84)l$  respectively. The ratio of milk & water in vessel A and vessel B is  $3 : 2$  and  $2 : 1$  respectively.

**Quantity I** – Quantity of milk in vessel B.

If  $60\%$  mixture from vessel A and  $66\frac{2}{3}\%$  mixture from vessel B taken out, then the remaining mixture in both vessels is equal.

**Quantity II** – 144

- (1) Quantity I > Quantity II                      (2) Quantity I < Quantity II  
(3) Quantity I ≥ Quantity II                    (4) Quantity I ≤ Quantity II  
(5) Quantity I = Quantity II or no relation

**39. Quantity I** – Breadth of rectangle.

Sum of circumference of a circle and perimeter of a rectangle is  $154$  cm. and area of the circle is  $346.5$  cm<sup>2</sup>. Length of the rectangle is  $166\frac{2}{3}\%$  more than radius of circle.

**Quantity II** – Side of square.

Circumference of a circle is  $132$  cm and area of circle is  $1130$  cm<sup>2</sup> more than area of square.

- (1) Quantity I > Quantity II                      (2) Quantity I < Quantity II  
(3) Quantity I ≥ Quantity II                    (4) Quantity I ≤ Quantity II  
(5) Quantity I = Quantity II or no relation

**40. Quantity I** – Three times of amount invested by Gopal.

Arun and Gopal entered into a business with the capital of Rs.  $(P + 1200)$  and Rs.  $(P + 1500)$  respectively. After 8 months from starting, Arun withdrew half of his investment and Gopal doubled his investment. At the end of year Arun got Rs.  $4250$  out of total profit of Rs.  $11250$ .

**Quantity II** – Profit share of C.

A and B started a business with initial investment of Rs.  $27000$  and Rs.  $36000$  respectively. After 4 months A withdraw Rs.  $5000$ , B added Rs.  $6000$  and C joined with Rs.  $35000$ . At the end of an year total profit of Rs.  $130500$  is obtained.

- (1) Quantity I > Quantity II                      (2) Quantity I < Quantity II  
(3) Quantity I ≥ Quantity II                    (4) Quantity I ≤ Quantity II  
(5) Quantity I = Quantity II or no relation

**41.** A bag contains 9 yellow balls,  $Y$  green balls and 7 red balls, if one ball is drawn at random from bag probability of it being green is  $\frac{5}{21}$ .

**Quantity I** – The probability that at least one of the fruits is apple when, two fruits are taken out from bucket P without replacement.

Bucket 'P' contains  $2Y$  apple,  $3(Y - 2)$  banana &  $1.5(Y - 1)$  orange.

**Quantity II** – The probability that both of the dice are of same color, when two dice are taken out from bucket Q without replacement.

Bag 'Q' contains 4 red dice,  $3.5(Y - 3)$  green dice and  $2Y$  yellow dice

- (1) Quantity I > Quantity II                      (2) Quantity I < Quantity II  
(3) Quantity I ≥ Quantity II                    (4) Quantity I ≤ Quantity II  
(5) Quantity I = Quantity II or no relation

**42.** A is twice as efficient as B. Both can complete a work together in  $7\frac{1}{2}$  days.

Quantity 1: Time taken by B to complete the work alone.

Quantity 2: If C is  $50\%$  more efficient than A, then time taken by C to complete the work alone.

1. Quantity 1 > Quantity 2                      2. Quantity 1 ≥ Quantity 2  
3. Quantity 2 > Quantity 1                      4. Quantity 2 ≥ Quantity 1  
5. Quantity 1 = Quantity 2 or Relation cannot be established

**43.** Two vessel A & B contains mixture of milk & water in the quantity of  $(X + 54)l$  and  $(X + 84)l$  respectively. The ratio of milk & water in vessel A and vessel B is  $3 : 2$  and  $2 : 1$  respectively.

**Quantity I** – Quantity of milk in vessel B.

If  $60\%$  mixture from vessel A and  $66\frac{2}{3}\%$  mixture from vessel B taken out, then the remaining mixture in both vessels is equal.

**Quantity II** – 144

- (1) Quantity I > Quantity II                      (2) Quantity I < Quantity II  
(3) Quantity I ≥ Quantity II                    (4) Quantity I ≤ Quantity II  
(5) Quantity I = Quantity II or no relation

**44. Quantity I** – Breadth of rectangle.

Sum of circumference of a circle and perimeter of a rectangle is  $154$  cm. and area of the circle is  $346.5$  cm<sup>2</sup>. Length of the rectangle is  $166\frac{2}{3}\%$  more than radius of circle.

**Quantity II** – Side of square.

Circumference of a circle is  $132$  cm and area of circle is  $1130$  cm<sup>2</sup> more than area of square.

- (1) Quantity I > Quantity II                      (2) Quantity I < Quantity II  
(3) Quantity I ≥ Quantity II                    (4) Quantity I ≤ Quantity II  
(5) Quantity I = Quantity II or no relation

**45. Quantity I** – Three times of amount invested by Gopal.

Arun and Gopal entered into a business with the capital of Rs.  $(P + 1200)$  and Rs.  $(P + 1500)$  respectively. After 8 months from starting, Arun withdrew half of his investment and Gopal doubled his investment. At the end of year Arun got Rs.  $4250$  out of total profit of Rs.  $11250$ .

**Quantity II** – Profit share of C.

A and B started a business with initial investment of Rs.  $27000$  and Rs.  $36000$  respectively. After 4 months A withdraw Rs.  $5000$ , B added Rs.  $6000$  and C joined with Rs.  $35000$ . At the end of an year total profit of Rs.  $130500$  is obtained.

- (1) Quantity I > Quantity II                      (2) Quantity I < Quantity II  
(3) Quantity I ≥ Quantity II                    (4) Quantity I ≤ Quantity II  
(5) Quantity I = Quantity II or no relation

Directions (46-50):- The following question has three statements. Study the question and the statements and decidewhich of the statement(s) is necessary to answer the question.

**46.** A farmer has the choice to plant two out of three (A, B, and C) crops in each half of his field. If the fixed cost of growing each crop is the same and equal to Rs.  $10,000$ .

What is the maximum profit that the farmer can earn?

- A) All the crops are sold at the same price.  
B) The variable cost of growing Crop A is Rs.  $50/\text{hectare}$  and the farm area is  $50$  hectare.  
C) The cost of growing if each crop was grown in the entire field is in the ratio  $2 : 3 : 7$  for A, B, and C respectively.

Choose the correct statement from the following:

1. Only A and B are Sufficient to answer
  2. Only A and C are Sufficient to answer
  3. Only B and C are Sufficient to answer
  4. Anyone alone is Sufficient to answer the question
  5. All statements are needed to answer the question
47. Cuboidal shaped bricks are used to build a rectangular wall. What is the cost of laying one brick?
- A) The cost of building the wall is Rs. 10000.
  - B) One of the dimensions of the brick is equal to the width of the wall and the other two are 2% of the dimensions of the rectangular wall.
  - C) The dimensions of the wall are 100 m × 50 m
- Choose the correct statement from the following:
1. Only A and B are Sufficient to answer
  2. Only A and C are Sufficient to answer
  3. Only B and C are Sufficient to answer
  4. Anyone alone is Sufficient to answer the question
  5. All statements are needed to answer the question
48. The distance covered by a boat in a river in the upstream direction is:
- A) The upstream speed of the boat is 30 km/hr
  - B) The speed of the stream is 13 km/hr
  - C) The distance covered by the boat in still water is 86 km in the same time in which it covered the upstream distance.
- Choose the correct statement from the following:
1. Only A and B are Sufficient to answer
  2. Only A and C are Sufficient to answer
  3. Only B and C are Sufficient to answer
  4. Anyone alone is Sufficient to answer the question

5. All statements are needed to answer the question
49. A man typing a manuscript takes 5 days to complete. How many words did he type in a day?
- A) The total words to be typed are 10,000.
  - B) if he types 10 words in a minute he can finish the manuscript one day earlier.
  - C) He works equal hours every day.
- Choose the correct statement from the following:
1. Only A and B are Sufficient to answer
  2. Only A and C are Sufficient to answer
  3. Only B and C are Sufficient to answer
  4. Anyone alone is Sufficient to answer the question
  5. All statements are needed to answer the question
50. A deck of the cards has 48 cards and the probability of red card is  $\frac{11}{48}$ . Find those 4 cards which have been removed?
- A) The number of red queens is more than black and more number of black kings than the red.
  - B) The probability of drawing a red card is equal to the probability of drawing a black card.
  - C) The probability of drawing a queen is equal to the probability of drawing a king and is equal to half its value if no cards were removed.
- Choose the correct statement from the following:
1. Only A and B are Sufficient to answer
  2. Only A and C are Sufficient to answer
  3. Only B and C are Sufficient to answer
  4. Anyone alone is Sufficient to answer the question
  5. All statements are needed to answer the question

**ANSWER KEY**

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