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The Question Bank

Quadratic Equation Questions for SBI PO Pre, IBPS PO Pre, SBI Clerk Mains and IBPS Clerk Mains Exams.

Quadratic Equation Quiz 6

Directions: In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer.

1. I. $5x^2 + 11x - 12 = 0$
II. $4y^2 - 13y - 12 = 0$

- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
E. if $x = y$ or relationship between x and y can't be established

2. I. $3x^2 + 19x + 30 = 0$
II. $3y^2 - 20y - 32 = 0$

- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
E. if $x = y$ or relationship between x and y can't be established

3. I. $x^2 - 4\sqrt{7}x + 21 = 0$
II. $2y^2 - 8\sqrt{5}y - 50 = 0$

- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
E. if $x = y$ or relationship between x and y can't be established

4. I. $x^2 - 52x + 667 = 0$
II. $y^2 + 8y - 33 = 0$

- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
E. if $x = y$ or relationship between x and y can't be established

5. I. $x^2 - 13\sqrt{2}x + 60 = 0$
II. $y^2 + 3\sqrt{5}y - 20 = 0$

- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
E. if $x = y$ or relationship between x and y can't be established

6. I. $10x^2 - 69x + 108 = 0$
II. $6y^2 - 47y + 77 = 0$

- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
E. if $x = y$ or relationship between x and y can't be established

7. I. $5x^2 - 34x + 24 = 0$
 II. $4y^2 - 13y + 9 = 0$

- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
 E. if $x \leq y$ or no relationship can be established between x and y .

8. I. $36x^2 - 196x - 11 = 0$
 II. $4y^2 - 19y + 12 = 0$

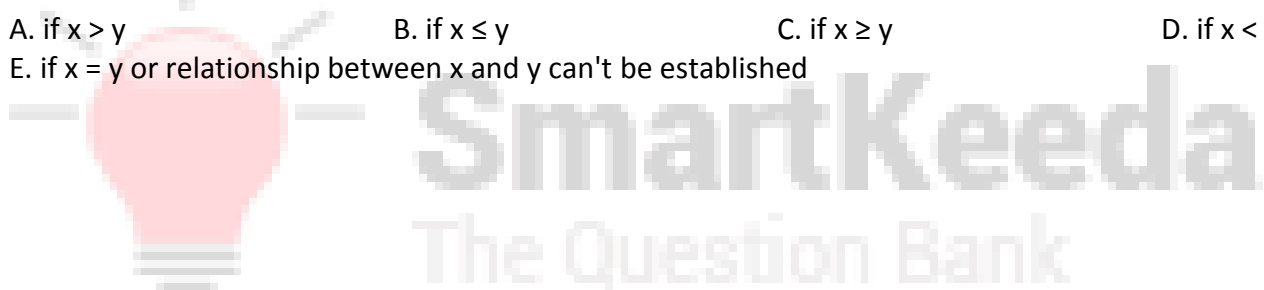
- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
 E. if $x = y$ or relationship between x and y can't be established

9. I. $6x^2 + 25x + 21 = 0$
 II. $5y^2 - 176y - 333 = 0$

- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
 E. if $x = y$ or relationship between x and y can't be established

10. I. $x^2 = 5476$
 II. $y^3 = 405224$

- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
 E. if $x = y$ or relationship between x and y can't be established



Correct Answers:

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

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Explanations:

1. I. $5x^2 + 11x - 12 = 0$
 $\Rightarrow 5x^2 + 15x - 4x - 12 = 0$
 $\Rightarrow 5x(x + 3) - 4(x + 3) = 0$
 $\Rightarrow (5x - 4)(x + 3) = 0$

$$\Rightarrow x = \frac{4}{5}, -3$$

II. $4y^2 - 13y - 12 = 0$
 $\Rightarrow 4y^2 - 16y + 3y - 12 = 0$
 $\Rightarrow 4y(y - 4) + 3(y - 4) = 0$
 $\Rightarrow (4y + 3)(y - 4) = 0$

$$\Rightarrow y = -\frac{3}{4}, 4$$

While comparing the root values of x and y , we find that one root value of y lies between the root values of x .

Therefore, relationship between x and y can't be determined.

Hence, option E is correct.

2. I. $3x^2 + 19x + 30 = 0$
 $\Rightarrow 3x^2 + 9x + 10x + 30 = 0$
 $\Rightarrow 3x^2 + 9x + 10x + 30 = 0$
 $\Rightarrow 3x(x + 3) + 10(x + 3) = 0$
 $\Rightarrow (3x + 10)(x + 3) = 0$

$$\Rightarrow x = -\frac{10}{3}, -3$$

II. $3y^2 - 20y - 32 = 0$
 $\Rightarrow 3y^2 - 24y + 4y - 32 = 0$
 $\Rightarrow 3y(y - 8) + 4(y - 8) = 0$
 $\Rightarrow (3y + 4)(y - 8) = 0$

$$\Rightarrow y = -\frac{4}{3}, 8$$

While comparing the root values x and y , we find that root values x is less than y 's.

Therefore, $x < y$

Hence, option D is correct.

3. I. $x^2 - 4\sqrt{7}x + 21 = 0$
 $\Rightarrow x^2 - \sqrt{7}x - 3\sqrt{7}x + 21 = 0$
 $\Rightarrow x(x - \sqrt{7}) - 3\sqrt{7}(x - \sqrt{7}) = 0$
 $\Rightarrow (x - \sqrt{7})(x - 3\sqrt{7}) = 0$
 $\Rightarrow x = \sqrt{7}, 3\sqrt{7}$

II. $2y^2 - 8\sqrt{5}y - 50 = 0$
 $\Rightarrow 2y^2 - 8\sqrt{5}y - 50 = 0$
 Taking 2 as a common term, we get
 $\Rightarrow y^2 - 4\sqrt{5}y - 25 = 0$
 $\Rightarrow y^2 + \sqrt{5}y - 5\sqrt{5}y - 25 = 0$
 $\Rightarrow y(y + \sqrt{5}) - 5\sqrt{5}(y + \sqrt{5}) = 0$
 $\Rightarrow (y + \sqrt{5})(y - 5\sqrt{5}) = 0$
 $\Rightarrow y = -\sqrt{5}, 5\sqrt{5}$

While comparing the root values of x and y, we find that root values of y lies between the x's root values.

Therefore, relationship between x and y can't be determined.

Hence, option E is correct.

4. I. $x^2 - 52x + 667 = 0$
 $\Rightarrow x^2 - 23x - 29x + 667 = 0$
 $\Rightarrow x(x - 23) - 29(x - 23) = 0$
 $\Rightarrow (x - 23)(x - 29) = 0$
 $\Rightarrow x = 23, 29$

II. $y^2 + 8y - 33 = 0$
 $\Rightarrow y^2 - 3y + 11y - 33 = 0$
 $\Rightarrow y(y - 3) + 11(y - 3) = 0$
 $\Rightarrow (y - 3)(y + 11) = 0$
 $\Rightarrow y = 3, -11$

Therefore, $x > y$
 Hence, option A is correct.

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5. I. $x^2 - 13\sqrt{2}x + 60 = 0$
 $\Rightarrow x^2 - 10\sqrt{2}x - 3\sqrt{2}x + 60 = 0$
 $\Rightarrow x(x - 10\sqrt{2}) - 3\sqrt{2}(x - 10\sqrt{2}) = 0$
 $\Rightarrow (x - 3\sqrt{2})(x - 10\sqrt{2}) = 0$
 $x = 3\sqrt{2}, 10\sqrt{2}$

II. $y^2 + 3\sqrt{5}y - 20 = 0$
 $\Rightarrow y^2 + 4\sqrt{5}y - \sqrt{5}y - 20 = 0$
 $\Rightarrow y(y + 4\sqrt{5}) - \sqrt{5}(y + 4\sqrt{5}) = 0$
 $\Rightarrow (y - \sqrt{5})(y + 4\sqrt{5}) = 0$
 $\Rightarrow y = -4\sqrt{5}, \sqrt{5}$

While comparing the root values of x and y, we find that the x's root values are greater than y's.

Hence, option A is correct.

6. I. $10x^2 - 69x + 108 = 0$
 $\Rightarrow 10x^2 - 45x - 24x + 108 = 0$
 $\Rightarrow 5x(2x - 9) - 12(2x - 9) = 0$
 $\Rightarrow (5x - 12)(2x - 9) = 0$

$\therefore x = \frac{12}{5}, \frac{9}{2}$

II. $6y^2 - 47y + 77 = 0$
 $\Rightarrow 6y^2 - 33y - 14y + 77 = 0$
 $\Rightarrow 3y(2y - 11) - 7(2y - 11) = 0$
 $\Rightarrow (3y - 7)(2y - 11) = 0$

$\therefore y = \frac{7}{3}, \frac{11}{2}$

on comparing the values of x and y, we get

$$\frac{12}{5} > \frac{7}{3}$$

$$\frac{12}{5} < \frac{11}{2}$$

$$\frac{9}{2} > \frac{7}{3}$$

$$\frac{9}{2} < \frac{11}{2}$$

Hence, either $x = y$ or relationship cannot be established.

Hence, option E is correct.

7. I. $5x^2 - 34x + 24 = 0$
 $\Rightarrow 5x^2 - 34x + 24 = 0$
 $\Rightarrow 5x^2 - 30x - 4x - 24 = 0$
 $\Rightarrow 5x(x - 6) - 4(x - 6) = 0$
 $\Rightarrow (5x - 4)(x - 6) = 0$

$$\Rightarrow x = \frac{4}{5}, 6$$

II. $4y^2 - 13y + 9 = 0$
 $\Rightarrow 4y^2 - 4y - 9y + 9 = 0$
 $\Rightarrow 4y(y - 1) - 9(y - 1) = 0$
 $\Rightarrow (4y - 9)(y - 1) = 0$

$$\Rightarrow y = \frac{9}{4}, 1$$

While comparing the root values of x and y, we find that the root values of x lies between the y's.

Therefore, relationship between x and y can't be determined.

Hence, option E is correct.

8. I. $36x^2 - 196x - 11 = 0$
 $\Rightarrow 36x^2 + 2x - 198x - 11 = 0$
 $\Rightarrow 2x(18x + 1) - 11(18x + 1) = 0$
 $\Rightarrow (2x - 11)(18x + 1) = 0$

$$\Rightarrow x = \frac{11}{2}, -\frac{1}{18}$$

II. $4y^2 - 19y + 12 = 0$
 $\Rightarrow 4y^2 - 16y - 3y + 12 = 0$
 $\Rightarrow 4y(y - 4) - 3(y - 4) = 0$
 $\Rightarrow (4y - 3)(y - 4) = 0$

$$\Rightarrow y = \frac{3}{4}, 4$$

While comparing the root values of x and y, we find that the root values of y lies between the x's.

Therefore, relationship between x and y can't be determined.

Hence, option E is correct.

9. I. $6x^2 + 25x + 21 = 0$
 $\Rightarrow 6x^2 + 18x + 7x + 21 = 0$
 $\Rightarrow 6x(x + 3) + 7(x + 3) = 0$
 $\Rightarrow (x + 3)(6x + 7) = 0$

$$\Rightarrow x = -\frac{7}{6}, -3$$

II. $5y^2 - 176y - 333 = 0$
 $\Rightarrow 5y^2 - 185y + 9y - 333 = 0$
 $\Rightarrow 5y(y - 37) + 9(y - 37) = 0$
 $\Rightarrow (y - 37)(5y + 9) = 0$

$$\Rightarrow y = 37, -\frac{9}{5}$$

While comparing the root values of x and y , we find that one root value of y lies between x 's root values.

Therefore, relationship between x and y cannot be determined.

Hence, option E is correct.

10. I. $x^2 = 5476$
 $\Rightarrow x = \pm 74$

II. $y^3 = 405224$
 $\Rightarrow y = 74$

Hence, $x \leq y$

Hence, option B is correct.

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