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Quadratic Equation Questions for IBPS PO Pre, SBI PO Pre, IBPS SO pre, LIC Assistant, IBPS Clerk Pre, SBI Clerk Pre and RBI Assistant, Exams.

Quadratic Equation Quiz 7

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. $25x^2 - 90x + 72 = 0$ II. $y^2 + 26y + 168 = 0$

- 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. $20x^2 - 108x + 144 = 0$ II. $8y^2 + 18y + 4 = 0$

- 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. $3x^2 - 8x - 16 = 0$ II. $3y^2 - 19y + 28 = 0$

- 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. $3x^2 - 5x - 12 = 0$ II. $2y^2 + 15y + 25 = 0$

- 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. $2x^2 + 5x + 2 = 0$ II. $6y^2 + 69y + 198 = 0$

- 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. $20x^2 + 93x + 99 = 0$ II. $16y^2 - 25 = 0$

- 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. $12x^2 - 4x - 5 = 0$ II. $8y^2 - 4y - 4 = 0$

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

8. I. $x^2 - 52x + 667 = 0$ II. $y^2 - 60y + 899 = 0$

- 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. $2x + 3y = 77$

II. $3x + 5y = 124$

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. $3x^2 - (6 + \sqrt{17})x + 2\sqrt{17} = 0$

II. $10y^2 - (15 + 2\sqrt{17})y + 3\sqrt{17} = 0$

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

Correct Answers:

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

Explanations:

1. I. $25x^2 - 90x + 72 = 0$
 $\Rightarrow (5x - 6)(5y - 12) = 0$
 $\Rightarrow x = \frac{6}{5}, \frac{12}{5}$

II. $y^2 + 26y + 168 = 0$
 $\Rightarrow (y + 12)(y + 14) = 0$
 $\Rightarrow y = -12, -14$

Hence, $x > Y$

Hence, option A is correct.

2. I. $20x^2 - 108x + 144 = 0$
 $\Rightarrow 4(5x^2 - 27x + 36) = 0$
 $\Rightarrow 5x^2 - 27x + 36 = 0$
 $\Rightarrow (5x - 12)(x - 3) = 0$
 $\Rightarrow x = \frac{12}{5}, 3$

II. $8y^2 + 18y + 4 = 0$
 $\Rightarrow (8y + 2)(y + 2) = 0$
 $\Rightarrow y = -\frac{1}{4}, -2$

Hence, $x > Y$

Hence, option A is correct.

3. I. $3x^2 - 8x - 16 = 0$
 $\Rightarrow (3x + 4)(x - 4) = 0$
 $\Rightarrow x = -\frac{4}{3}, 4$

II. $3y^2 - 19y + 28 = 0$
 $\Rightarrow (3y - 7)(y - 4) = 0$
 $\Rightarrow y = \frac{7}{3}, 4$

Hence, relationship between x and y cannot be determined.

Hence, option E is correct.

4. I. $3x^2 - 5x - 12 = 0$
 $\Rightarrow (3x + 4)(x - 3) = 0$
 $\Rightarrow x = -\frac{4}{3}, 3$

II. $2y^2 + 15y + 25 = 0$
 $\Rightarrow (2y + 5)(y + 5) = 0$
 $\Rightarrow y = -\frac{5}{2}, -5$

Hence, $x > y$

Hence, option A is correct.

5. I. $2x^2 + 5x + 2 = 0$
 $\Rightarrow (2x + 1)(x + 2) = 0$
 $\Rightarrow x = -\frac{1}{2}, -2$

II. $6y^2 + 69y + 198 = 0$
 $\Rightarrow 3(2y^2 + 23y + 66) = 0$
 $\Rightarrow 2y^2 + 23y + 66 = 0$
 $\Rightarrow (2y + 11)(y + 6) = 0$
 $\Rightarrow y = -\frac{11}{2}, -6$

Hence, $x > y$

Hence, option A is correct.

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6. I. $20x^2 + 93x + 99 = 0$
 $\Rightarrow 20x^2 + 60x + 33x + 99 = 0$
 $\Rightarrow 20x(x + 3) + 33(x + 3) = 0$
 $\Rightarrow (x + 3)(20x + 33) = 0$
 $\therefore x = -3$ or $x = -\frac{33}{20}$

II. $16y^2 - 25 = 0$
 $\Rightarrow 16y^2 + 20y - 20y - 25 = 0$
 $\Rightarrow 4y(4y + 5) - 5(4y + 5) = 0$
 $\Rightarrow (4y - 5)(4y + 5) = 0$
 $\therefore y = \frac{5}{4}$ or $y = -\frac{5}{4}$

So, we can say that $x < y$.
Hence, option D is correct.

7. I. $12x^2 - 4x - 5 = 0$
 $\Rightarrow 12x^2 - 10x + 6x - 5 = 0$
 $\Rightarrow 6x(2x + 1) - 5(2x + 1) = 0$
 $\Rightarrow (6x - 5)(2x + 1) = 0$
 $\therefore x = \frac{5}{6}$ or $\frac{-1}{2}$

II. $8y^2 - 4y - 4 = 0$
 $\Rightarrow 8y^2 - 8y + 4y - 4 = 0$
 $\Rightarrow 8y(y - 1) + 4(y - 1) = 0$
 $\Rightarrow (8y + 4)(y - 1) = 0$
 $\therefore y = \frac{-1}{2}$ or $y = 1$

So, here we can't say anything.
Hence, option E is correct.

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8. From I :

$$\Rightarrow x^2 - 52x + 667 = 0$$

$$\Rightarrow x^2 - 23x - 29x + 667 = 0$$

$$\Rightarrow x(x - 23) - 29(x - 23) = 0$$

$$\Rightarrow (x - 29)(x - 23) = 0$$

$$\therefore x = 29, 23$$

From II :

$$\Rightarrow y^2 - 60y + 899 = 0$$

$$\Rightarrow y^2 - 29y - 31y + 899 = 0$$

$$\Rightarrow y(y - 29) - 31(y - 29) = 0$$

$$\Rightarrow (y - 31)(y - 29) = 0$$

$$\therefore y = 29, 31$$

Now,

$$x \quad y$$

$$29 = 29$$

$$29 < 31$$

$$23 < 29$$

$$23 < 31$$

Here, $x \leq y$.

Hence, option (B) is correct.

9. We have

$$2x + 3y = 77 \dots\dots\dots(i)$$

$$3x + 5y = 124 \dots\dots\dots(ii)$$

Multiplying eq. (i) by 3 and eq. (ii) by 2, we get

$$6x + 9y = 231 \dots\dots\dots(iii)$$

$$6x + 10y = 246 \dots\dots\dots(iv)$$

Subtracting eq. (iv) from (iii) we get

$$y = 17$$

putting value of $y = 17$ in (i), we get

$$\Rightarrow 2x + 3 \times 17 = 77$$

$$\Rightarrow 2x = 51$$

$$\therefore x = 13$$

Here, $x < y$.

Hence, option (D) is correct.

10. I. $3x^2 - (6 + \sqrt{17})x + 2\sqrt{17} = 0$
 $\Rightarrow 3x^2 - 6x - \sqrt{17}x + 2\sqrt{17} = 0$
 $\Rightarrow 3x(x - 2) - \sqrt{17}(x - 2) = 0$
 $\Rightarrow (3x - \sqrt{17})(x - 2) = 0$
 $\Rightarrow x = \frac{\sqrt{17}}{3}, 2$

II. $10y^2 - (15 + 2\sqrt{17})y + 3\sqrt{17} = 0$
 $\Rightarrow 10y^2 - 15y - 2\sqrt{17}y + 3\sqrt{17} = 0$
 $\Rightarrow 5y(2y - 3) - \sqrt{17}(2y - 3) = 0$
 $\Rightarrow (5y - \sqrt{17})(2y - 3) = 0$
 $\Rightarrow y = \frac{\sqrt{17}}{5}, \frac{3}{2}$

On comparing values of x and y

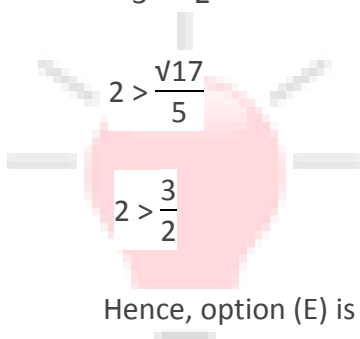
$$\frac{\sqrt{17}}{3} > \frac{\sqrt{17}}{5}$$

$$\frac{\sqrt{17}}{3} < \frac{3}{2}$$

$$2 > \frac{\sqrt{17}}{5}$$

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

Hence, option (E) is correct.



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