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 ≤ y   C. if x ≥ 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 ≤ y   C. if x ≥ 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 ≤ y   C. if x ≥ 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 ≤ y   C. if x ≥ 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 ≤ y   C. if x ≥ 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 ≤ y   C. if x ≥ 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 ≥ y
E. if x ≤ 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 ≤ y   C. if x ≥ 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 ≤ y   C. if x ≥ y   D. if x < y
E. if x = y or relationship between x and y can't be established

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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 ≤ y   C. if x ≥ 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.** $25x^2 - 90x + 72 = 0$
⇒ (5x − 6) (5y − 12) = 0
⇒ $x = \dfrac{6}{5}, \dfrac{12}{5}$

II. $y^2 + 26y + 168 = 0$
⇒ (y + 12)(y + 14) = 0
⇒ y = − 12, − 14

Hence, x > Y

Hence, option A is correct.

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

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

Hence, x > Y
Hence, option A is correct.

3.   I. $3x^2 - 8x - 16 = 0$

⇒ $(3x + 4)(x - 4) = 0$

⇒ $x = -\dfrac{4}{3}, 4$

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

⇒ $(3y - 7)(y - 4) = 0$

⇒ $y = \dfrac{7}{3}, 4$

Hence, relationship between x and y cannot be determined.

Hence, option E is correct.

4.   I. $3x^2 - 5x - 12 = 0$

⇒ $(3x + 4)(x - 3) = 0$

⇒ $x = -\dfrac{4}{3}, 3$

II. $2y^2 + 15y + 25 = 0$

⇒ $(2y + 5)(y + 5) = 0$

⇒ $y = -\dfrac{5}{2}, -5$

Hence, x > y

Hence, option A is correct.

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

⇒ $(2x + 1)(x + 2) = 0$

⇒ $x = -\dfrac{1}{2}, -2$

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

⇒ $3(2y^2 + 23y + 66) = 0$

⇒ $2y^2 + 23y + 66 = 0$

⇒ $(2y + 11)(y + 6) = 0$

⇒ $y = -\dfrac{11}{2}, -6$

Hence, x > y

Hence, option A is correct.

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 $x = -\dfrac{33}{20}$

II. $16y^2 - 25 = 0$

$\Rightarrow 16y^2 + 20y - 20y - 25 = 0$

$\Rightarrow 4y(4y + 5) - 5(4y + 5) = 0$

$\Rightarrow (4y - 5)(4y + 5) = 0$

$\therefore y = \dfrac{5}{4}$ or $y = -\dfrac{5}{4}$

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

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7. **I.** $12x^2 - 4x - 5 = 0$

$\Rightarrow 12x^2 - 10x + 6x - 5 = 0$

$\Rightarrow 6x(2x + 1) - 5(2x + 1) = 0$

$\Rightarrow (6x - 5)(2x + 1) = 0$

$\therefore x = \dfrac{5}{6}$ or $\dfrac{-1}{2}$

II. $8y^2 - 4y - 4 = 0$

$\Rightarrow 8y^2 - 8y + 4y - 4 = 0$

$\Rightarrow 8y(y - 1) + 4(y - 1) = 0$

$\Rightarrow (8y + 4)(y - 1) = 0$

$\therefore y = \dfrac{-1}{2}$ or $y = 1$

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

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   y

29 = 29

29 < 31

23 < 29

23 < 31

Here, $x \leq y$.

Hence, option (B) is correct.

9. We have

2x + 3y = 77...............(i)

3x + 5y = 124..............(ii)

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

6x + 9y = 231 ....(iii)

6x + 10y = 246 ....(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.** $3x^2 - (6 + \sqrt{17})x + 2\sqrt{17} = 0$

$\Rightarrow 3x^2 - 6x - \sqrt{17}x + 2\sqrt{17} = 0$

$\Rightarrow 3x(x - 2) - \sqrt{17}(x - 2) = 0$

$\Rightarrow (3x - \sqrt{17})(x - 2) = 0$

$\Rightarrow x = \dfrac{\sqrt{17}}{3}, 2$

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

$\Rightarrow 10y^2 - 15y - 2\sqrt{17}y + 3\sqrt{17} = 0$

$\Rightarrow 5y(2y - 3) - \sqrt{17}(2y - 3) = 0$

$\Rightarrow (5y - \sqrt{17})(2y - 3) = 0$

$\Rightarrow y = \dfrac{\sqrt{17}}{5}, \dfrac{3}{2}$
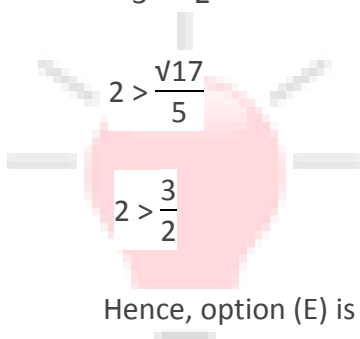
On comparing values of x and y

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

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

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

$2 > \dfrac{3}{2}$

Hence, option (E) is correct.