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Quadratic Equation Questions for SBI Clerk Pre, IBPS Clerk Pre, LIC Assistant Pre and IBPS RRB Exams.

Quadratic Eqn. Quiz 31

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. $8x^2 - 23x + 15 = 0$
II. $3y^2 + 11y + 8 = 0$

- 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. $2x^2 - 19x + 42 = 0$
II. $20y^2 - 89y + 99 = 0$

- 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. $(144)^{1/2} x + \sqrt{7396} = 194$
II. $(729)^{1/2} y^2 - 545 = \sqrt{16900}$

- 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. $2x^2 - 23x + 56 = 0$
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

5. I. $5x + 9y = 109$
II. $3x + 4y = 62$

- 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. $x^2 - 29x + 210 = 0$
II. $y^2 = 196$

- 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. $6x^2 - 23x + 17 = 0$
 II. $3y^2 - 19y + 30 = 0$

- 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

8. I. $x^2 - 10x + 21 = 0$
 II. $y^2 - 8y + 15 = 0$

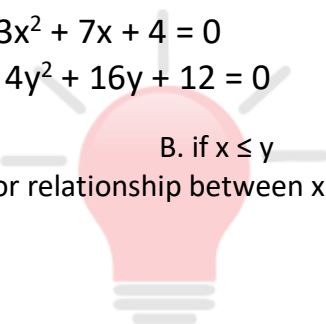
- A. if $x > y$ B. if $x \leq y$ C. if $x \geq y$ D. if $x < y$
 E. if $x = y$ or relationship between x and y can't be established

9. I. $x^2 + 13x + 40 = 0$
 II. $3y^2 + 23y + 30 = 0$

- 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. $3x^2 + 7x + 4 = 0$
 II. $4y^2 + 16y + 12 = 0$

- 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



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Correct Answers:

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



Explanations:

1. I. $8x^2 - 23x + 15 = 0$
 $8x^2 - 8x - 15x + 15 = 0$
 $8x(x - 1) - 15(x - 1) = 0$
 $(8x - 15)(x - 1) = 0$
 $x = \frac{15}{8}, 1$

II. $3y^2 + 11y + 8 = 0$
 $3y^2 + 3y + 8y + 8 = 0$
 $3y(y + 1) + 8(y + 1) = 0$
 $(3y + 8)(y + 1) = 0$
 $y = -\frac{8}{3}, -1$

Hence, $x > y$

Hence, option A is correct.

2. I. $2x^2 - 19x + 42 = 0$
 $2x^2 - 12x - 7x + 42 = 0$
 $2x(x - 6) - 7(x - 6) = 0$
 $(2x - 7)(x - 6) = 0$
 $x = \frac{7}{2}, 6$

II. $20y^2 - 89y + 99 = 0$
 $20y^2 - 45y - 44y + 99 = 0$
 $5y(4y - 9) - 11(4y - 9) = 0$
 $(5y - 11)(4y - 9) = 0$
 $y = \frac{11}{5}, 2.25$

Hence, $x > y$

Hence, option A is correct.

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3. I. $(144)^{1/2} x + \sqrt{7396} = 194$
 $12x + 86 = 194$
 $x = \frac{194 - 86}{12} = \frac{108}{12} = 9$

II. $(729)^{1/2} y^2 - 545 = \sqrt{16900}$
 $27y^2 - 545 = \sqrt{16900}$
 $y^2 = \frac{130 + 545}{27} = \frac{675}{27} = 25$

$y = \pm 5$
Hence, $x > y$
Hence, option A is correct.

4. I. $2x^2 - 23x + 56 = 0$
 $2x^2 - 16x - 7x + 56 = 0$
 $2x(x - 8) - 7(x - 8) = 0$
 $(2x - 7)(x - 8) = 0$
 $x = \frac{7}{2}, 8$

II. $4y^2 - 19y + 12 = 0$
 $4y^2 - 16y - 3y + 12 = 0$
 $4y(y - 4) - 3(y - 4) = 0$
 $(4y - 3)(y - 4) = 0$
 $y = \frac{3}{4}, 4$

Hence, no relationship can be established.
Hence, option E is correct.

5. I. $5x + 9y = 109$ (i)
II. $3x + 4y = 62$ (ii)
Eqn. (i) $\times 3$ - (ii) $\times 5$, we get

$$\begin{array}{r} 15x + 27y = 327 \\ 15x + 20y = 310 \\ \hline 7y = 17 \end{array}$$

$$y = \frac{17}{7} = 2 \frac{3}{7}$$

Putting the value of y in eqn. (i) or (ii), we get

$$x = \frac{122}{7} = 17 \frac{3}{7}$$

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

6. I. $x^2 - 29x + 210 = 0$



$$\begin{aligned} &\Rightarrow x^2 - 14x - 15x + 210 = 0 \\ &\Rightarrow x(x - 14) - 15(x - 14) = 0 \\ &\Rightarrow (x - 14)(x - 15) = 0 \\ &x = 14, 15 \end{aligned}$$

$$\begin{aligned} \text{II. } &y^2 = 196 \\ &\Rightarrow y = \pm 14 \end{aligned}$$

Hence, $x \geq y$
Hence, option C is correct.

7.

$$\begin{aligned} \text{I. } &6x^2 - 23x + 17 = 0 \\ &\Rightarrow 6x^2 - 6x - 17x + 17 = 0 \\ &\Rightarrow 6x(x - 1) - 17(x - 1) = 0 \\ &\Rightarrow (6x - 17)(x - 1) = 0 \\ &x = \frac{17}{6}, 1 \end{aligned}$$

$$\begin{aligned} \text{II. } &3y^2 - 19y + 30 = 0 \\ &\Rightarrow 3y^2 - 9y - 10y + 30 = 0 \\ &\Rightarrow 3y(y - 3) - 10(y - 3) = 0 \\ &\Rightarrow (3y - 10)(y - 3) = 0 \\ &y = \frac{10}{3}, 3 \end{aligned}$$

While comparing the root values of x and y , we find that both root values of x are less than y 's. Therefore, $x < y$.

Hence, option D is correct.

8.

$$\begin{aligned} \text{I. } &x^2 - 10x + 21 = 0 \\ &\Rightarrow x^2 - 7x - 3x + 21 = 0 \\ &\Rightarrow x(x - 7) - 3(x - 7) = 0 \\ &\Rightarrow (x - 3)(x - 7) = 0 \\ &x = 3, 7 \end{aligned}$$

$$\begin{aligned} \text{II. } &y^2 - 8y + 15 = 0 \\ &\Rightarrow y^2 - 5y - 3y + 15 = 0 \\ &\Rightarrow y(y - 5) - 3(y - 5) = 0 \\ &\Rightarrow (y - 5)(y - 3) = 0 \\ &\Rightarrow y = 3, 5 \end{aligned}$$

While comparing the root values of x and y , we find the one root value of y lies between the root values of x . Hence relation between x and y can't be established.

Hence, option E is correct.

9.

$$\begin{aligned} \text{I. } &x^2 + 13x + 40 = 0 \\ &\Rightarrow x^2 + 8x + 5x + 40 = 0 \end{aligned}$$

$$\Rightarrow x(x+8) + 5(x+8) = 0$$

$$\Rightarrow (x+8)(x+5) = 0$$

$$x = -8, -5$$

$$\text{II. } 3y^2 + 23y + 30 = 0$$

$$\Rightarrow 3y^2 + 18y + 5y + 30 = 0$$

$$\Rightarrow 3y(y+6) + 5(y+6) = 0$$

$$\Rightarrow (3y+5)(y+6) = 0$$

$$y = -\frac{5}{3}, -6$$

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, the relation between x and y .

Hence, option E is correct.

10.

$$\text{I. } 3x^2 + 7x + 4 = 0$$

$$\Rightarrow 3x^2 + 3x + 4x + 4 = 0$$

$$\Rightarrow 3x(x+1) + 4(x+1) = 0$$

$$\Rightarrow (3x+4)(x+1) = 0$$

$$x = -\frac{4}{3}, -1$$

$$\text{II. } 4y^2 + 16y + 12 = 0$$

or, $y^2 + 4y + 3 = 0$

$$\Rightarrow y^2 + 3y + y + 3 = 0$$

$$\Rightarrow y(y+3) + 1(y+3) = 0$$

$$\Rightarrow (y+3)(y+1) = 0$$

$$\Rightarrow y = -3, -1$$

While comparing the root values of x and y , we find that one root value of x is lies between the values of y . Therefore, the relation between x and y can't be established.

Hence, option E is correct.

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