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# Quadratic Equation Questions for SBI Clerk Mains, IBPS Clerk Mains, RBI Assistant Mains, LIC AAO, SBI PO Pre, IBPS PO Pre and RRB Scale I Pre Exams.

## Quadratic Eqn. Quiz 27

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.  $x^2 - 35x + 306 = 0$   
II.  $y^2 - 44y + 475 = 0$

- 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.  $3x^2 - 37x + 110 = 0$   
II.  $6y^2 - 80y + 264 = 0$

- 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.  $15x^2 + 29x + 8 = 0$   
II.  $4y^2 - 71y - 18 = 0$

- 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.  $4x^2 - 13x - 17 = 0$   
II.  $60y^2 - 326y - 22 = 0$

- 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.  $x^2 - 10.5x + 22.5 = 0$   
II.  $37y^2 - 49y - 186 = 0$

- 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.  $9x^2 - 26x + 16 = 0$   
II.  $3y^2 - 16y + 20 = 0$

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

7. I.  $12x^2 + 19x + 5 = 0$

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II.  $5y^2 + 16y + 3 = 0$

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

8. I.  $46x^2 - 35x - 11 = 0$   
II.  $3y^2 + 39y + 108 = 0$

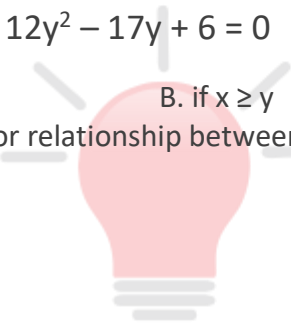
- A. if  $x > y$       B. if  $x \geq y$       C. if  $x < y$       D. if  $x \leq y$   
E. if  $x = y$  or relationship between  $x$  and  $y$  can't be established

9. I.  $2x^2 + 13x + 15 = 0$   
II.  $3y^2 + 14y + 15 = 0$

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

10. I.  $3x^2 - 23x + 40 = 0$   
II.  $12y^2 - 17y + 6 = 0$

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



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**Correct Answers:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
D	E	D	E	C	B	E	A	E	A

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## Explanations:

1. According to the given equations:

$$\text{I. } x^2 - 35x + 306 = 0$$

$$x^2 - 18x - 17x + 306 = 0$$

$$x(x - 18) - 17(x - 18) = 0$$

$$(x - 17)(x - 18) = 0$$

$$x = 17, 18$$

$$\text{II. } y^2 - 44y + 475 = 0$$

$$\Rightarrow y^2 - 25y - 19y + 475 = 0$$

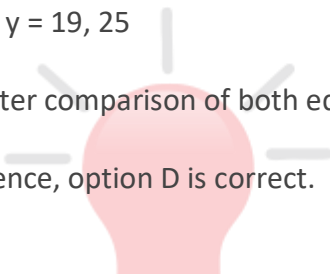
$$\Rightarrow y(y - 25) - 19(y - 25) = 0$$

$$\Rightarrow (y - 19)(y - 25) = 0$$

$$\Rightarrow y = 19, 25$$

After comparison of both equations, the conclusion is  $x < y$

Hence, option D is correct.



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2. According to the given equations:

$$\text{I. } 3x^2 - 37x + 110 = 0$$

$$3x^2 - 15x - 22x + 110 = 0$$

$$3x(x - 5) - 22(x - 5) = 0$$

$$(3x - 22)(x - 5) = 0$$

$$x = 5, \frac{22}{3}$$

$$\text{II. } 6y^2 - 80y + 264 = 0$$

$$3y^2 - 40y + 132 = 0$$

$$3y^2 - 18y - 22y + 132 = 0$$

$$3y(y - 6) - 22(y - 6) = 0$$

$$(3y - 22)(y - 6) = 0$$

$$y = \frac{22}{3}, 6$$

After comparison of both equations, the conclusion is  $x = y$  or no relation is obtained

Hence, option E is correct.

3. I.  $15x^2 + 29x + 8 = 0$   
 $15x^2 + 24x + 5x + 8 = 0$   
 $3x(5x + 8) + (5x + 8) = 0$   
 $(5x + 8)(3x + 1) = 0$

If  $5x + 8 = 0$  then  $x = -\frac{8}{5}$

If  $3x + 1 = 0$  then  $x = -\frac{1}{3}$

II.  $4y^2 - 71y - 18 = 0$   
 $4y^2 - 72y + y - 18 = 0$   
 $4y(y - 18) + (y - 18) = 0$   
 $(4y + 1)(y - 18) = 0$

If  $4y + 1 = 0$  then  $y = -\frac{1}{4}$

If  $y - 18 = 0$  then  $y = 18$

As,  $x = -\frac{8}{5}$  or  $x = -\frac{1}{3}$  and  $y = 18$  and  $y = -\frac{1}{4}$

Hence,  $x < y$

Hence, option D is correct.

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4. I.  $4x^2 - 13x - 17 = 0$   
or,  $4x^2 - 17x + 4x - 17 = 0$   
or,  $x(4x - 17) + 1(4x - 17) = 0$   
or,  $(x + 1)(4x - 17) = 0$

or,  $x = \frac{17}{4}, -1$

II.  $60y^2 - 326y - 22 = 0$   
 $\Rightarrow 60y^2 - 330y + 4y - 22 = 0$   
 $\Rightarrow 30y^2 - 165y + 2y - 11 = 0$   
 $\Rightarrow 15y(2y - 11) + 1(2y - 11) = 0$   
 $\Rightarrow (2y - 11)(15y + 1) = 0$

$\Rightarrow y = \frac{11}{2}, -\frac{1}{15}$

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

Hence the relation between  $x$  and  $y$  can't be established.

Hence, option E is correct.

5. I.  $x^2 - 10.5x + 22.5 = 0$

$$x^2 - 7.5x - 3x + 22.5 = 0$$

$$x(x - 7.5) - 3(x - 7.5) = 0$$

$$(x - 7.5)(x - 3) = 0$$

$$x = 7.5, 3$$

II.  $37y^2 - 49y - 186 = 0$

$$\Rightarrow 37y^2 - 111y + 62y - 186 = 0$$

$$\Rightarrow 37y(y - 3) + 62(y - 3) = 0$$

$$\Rightarrow (37y + 62)(y - 3) = 0$$

$$\Rightarrow y = -\frac{62}{37}, 3$$

While comparing the root values of  $x$  and  $y$ , we find that one root value of  $y$  is equal to  $x$ 's and other one is less than  $x$ 's. Therefore,  $x \geq y$

Hence, option C is correct.

6. I.  $9x^2 - 26x + 16 = 0$

$$\Rightarrow 9x^2 - 18x - 8x + 16 = 0$$

$$\Rightarrow 9x(x - 2) - 8(x - 2) = 0$$

$$\Rightarrow (9x - 8)(x - 2) = 0$$

$$\Rightarrow x = \frac{8}{9} \cdot 2$$

II.  $3y^2 - 16y + 20 = 0$

$$\Rightarrow 3y^2 - 6y - 10y + 20 = 0$$

$$\Rightarrow 3y(y - 2) - 10(y - 2) = 0$$

$$\Rightarrow (3y - 10)(y - 2) = 0$$

$$y = \frac{10}{3} \cdot 2$$

Here,  $x \leq y$

Hence, option B is correct.

7. I.  $12x^2 + 19x + 5 = 0$

$$\Rightarrow 12x^2 + 4x + 15x + 5 = 0$$

$$\Rightarrow 4x(3x + 1) + 5(3x + 1) = 0$$

$$\Rightarrow (4x + 5)(3x + 1) = 0$$

$$\Rightarrow x = -\frac{5}{4}, -\frac{1}{3}$$

$$\text{II. } 5y^2 + 16y + 3 = 0$$

$$\Rightarrow 5y^2 + 1y + 15y + 3 = 0$$

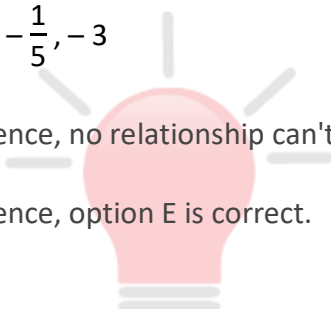
$$\Rightarrow y(5y + 1) + 3(5y + 1) = 0$$

$$\Rightarrow (5y + 1)(y + 3) = 0$$

$$y = -\frac{1}{5}, -3$$

Hence, no relationship can't be established

Hence, option E is correct.



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**8.** I.  $46x^2 - 35x - 11 = 0$   
or,  $46x^2 - 46x + 11x - 11 = 0$   
or,  $46x(x - 1) + 11(x - 1) = 0$   
or,  $(46x + 11)(x - 1) = 0$

$$\therefore x = -\frac{11}{46}, 1$$

II.  $3y^2 + 39y + 108 = 0$   
or,  $3y^2 + 27y + 12y + 108 = 0$   
or,  $3y(y + 9) + 12(y + 9) = 0$   
or,  $(y + 9)(3y + 12) = 0$

$$y = -\frac{12}{3} = -4 \text{ \& } -9$$

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

Hence, option A is correct.

**9.** I.  $2x^2 + 13x + 15 = 0$



$$\begin{aligned}\text{or, } 2x^2 + 10x + 3x + 15 &= 0 \\ \text{or, } 2x(x + 5) + 3(x + 5) &= 0 \\ \text{or, } (2x + 3)(x + 5) &= 0\end{aligned}$$

$$\text{or, } x = -\frac{3}{2}, -5$$

$$\text{II. } 3y^2 + 14y + 15 = 0$$

$$\text{or, } 3y^2 + 9y + 5y + 15 = 0$$

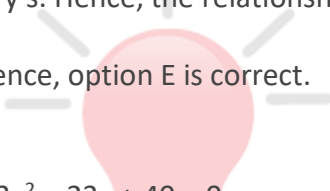
$$\text{or, } 3y(y + 3) + 5(y + 3) = 0$$

$$\text{or, } (y + 3)(3y + 5) = 0$$

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

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

Hence, option E is correct.



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**10.** I.  $3x^2 - 23x + 40 = 0$   
or,  $3x^2 - 15x - 8x + 40 = 0$   
or,  $3x(x - 5) - 8(x - 5) = 0$   
or,  $(x - 5)(3x - 8) = 0$

$$\therefore x = \frac{8}{3}, 5$$

$$\begin{aligned}\text{II. } 12y^2 - 17y + 6 &= 0 \\ \text{or, } 12y^2 - 9y - 8y + 6 &= 0 \\ \text{or, } 3y(4y - 3) - 2(4y - 3) &= 0 \\ \text{or, } (3y - 2)(4y - 3) &= 0\end{aligned}$$

$$\therefore y = \frac{2}{3}, \frac{3}{4}$$

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

Hence, option A is correct.



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