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

## Quadratic Equation Quiz 10

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.  $x^2 - 19x + 84 = 0$   
II.  $y^2 - 19y + 88 = 0$

- 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.  $7x^2 - 110x + 247 = 0$   
II.  $14y^2 - 79y - 78 = 0$

- 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.  $6x^2 + 31x - 77 = 0$   
II.  $9y^2 - 52y + 64 = 0$

- 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.  $7x^2 + \sqrt{7}x - 20 = 0$   
II.  $7y^2 - 10\sqrt{7}y + 21 = 0$

- 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.  $x^2 - 44x + 475 = 0$   
II.  $y^2 - 4y - 621 = 0$

- 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.  $37x^2 - 49x - 186 = 0$   
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

7. I.  $3x^2 - 8x - 16 = 0$   
 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  $x \leq y$  or no relationship can be established between  $x$  and  $y$ .

8. I.  $x^2 - 13\sqrt{3}x + 108 = 0$   
 II.  $y^2 - 11\sqrt{3}y + 90 = 0$

- 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.  $324x^2 - 9 = 0$   
 II.  $\sqrt{324}y + 3 = 0$

- 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.  $x^2 - 4\sqrt{7}x + 21 = 0$   
 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

Correct Answers:

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

Explanations:

1. I.  $x^2 - 19x + 84 = 0$   
 $\Rightarrow x^2 - 12x - 7x + 84 = 0$   
 $\Rightarrow x(x - 12) - 7(x - 12) = 0$   
 $\Rightarrow (x - 7)(x - 12) = 0$   
 $\therefore x = 7, 12$   
 II.  $y^2 - 19y + 88 = 0$   
 $\Rightarrow y^2 - 11y - 8y + 88 = 0$   
 $\Rightarrow y(y - 11) - 8(y - 11) = 0$   
 $\Rightarrow (y - 8)(y - 11) = 0$   
 $\therefore y = 8, 11$

On comparing the value of  $x$  and  $y$

$x$	$y$
7	< 11
7	< 8
12	> 11
12	> 8

Hence, either  $x = y$  or relationship can't be established.                      Hence, option E is correct.

2. I.  $7x^2 - 110x + 247 = 0$   
 $\Rightarrow 7x^2 - 91x - 19x + 247 = 0$   
 $\Rightarrow 7x(x - 13) - 19(x - 13) = 0$   
 $\Rightarrow (7x - 19)(x - 13) = 0$

$$\Rightarrow x = \frac{19}{7}, 13$$

II.  $14y^2 - 79y - 78 = 0$   
 $\Rightarrow 14y^2 - 91y + 12y - 78 = 0$   
 $\Rightarrow 7y(2y - 13) + 6(2y - 13) = 0$   
 $\Rightarrow (7y + 6)(2y - 13) = 0$

$$\Rightarrow y = -\frac{6}{7}, \frac{13}{2}$$

Hence, relationship between x and y cannot be determined.  
Hence, option E is correct.

3. I.  $6x^2 + 31x - 77 = 0$   
 $\Rightarrow 6x^2 + 42x - 11x - 77 = 0$   
 $\Rightarrow 6x(x + 7) - 11(x + 7) = 0$   
 $\Rightarrow (6x - 11)(x + 7) = 0$

$$\Rightarrow x = \frac{11}{6}, -7$$

II.  $9y^2 - 52y + 64 = 0$   
 $\Rightarrow 9y^2 - 36y - 16y + 64 = 0$   
 $\Rightarrow 9y(y - 4) - 16(y - 4) = 0$   
 $\Rightarrow (9y - 16)(y - 4) = 0$

$$\Rightarrow y = \frac{16}{9}, 4$$

Hence, relationship between x and y cannot be determined.

Hence, option E is correct.

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4. I.  $7x^2 + \sqrt{7}x - 20 = 0$   
 $\Rightarrow 7x^2 - 4\sqrt{7}x + 5\sqrt{7}x - 20 = 0$   
 $\Rightarrow \sqrt{7}x(\sqrt{7}x - 4) + 5(\sqrt{7}x - 4) = 0$   
 $\Rightarrow (\sqrt{7}x + 5)(\sqrt{7}x - 4) = 0$

$$\Rightarrow x = -\frac{5}{\sqrt{7}}, \frac{4}{\sqrt{7}}$$

II.  $7y^2 - 10\sqrt{7}y + 21 = 0$   
 $\Rightarrow 7y^2 - 7\sqrt{7}y - 3\sqrt{7}y + 21 = 0$   
 $\Rightarrow 7y(y - \sqrt{7}) - 3\sqrt{7}(y - \sqrt{7}) = 0$   
 $\Rightarrow (y - \sqrt{7})(7y - 3\sqrt{7}) = 0$

$$\Rightarrow y = \sqrt{7}, \frac{3}{\sqrt{7}}$$

When we compare the first root of x (which is negative) with both the roots of y then  $x < y$

When we compare the second root of x (which is positive) with both the roots of y then we cannot determine as one root of y is less and other is greater.

Hence, relationship between x and y cannot be determined.

Hence, option E is correct.

5. I.  $x^2 - 44x + 475 = 0$   
 $\Rightarrow x^2 - 25x - 19x + 475 = 0$   
 $\Rightarrow x(x - 25) - 19(x - 25) = 0$   
 $\Rightarrow (x - 19)(x - 25) = 0$   
 $\Rightarrow x = 19, 25$

II.  $y^2 - 4y - 621 = 0$   
 $\Rightarrow y^2 + 23y - 27y - 621 = 0$   
 $\Rightarrow y(y + 23) - 27(y + 23) = 0$   
 $\Rightarrow (y - 27)(y + 23) = 0$   
 $\Rightarrow y = 27, -23$

Hence, relationship between x and y cannot be determined.

Hence, option E is correct.

6. I.  $37x^2 - 49x - 186 = 0$   
 $\Rightarrow 37x^2 - 111x + 62x - 186 = 0$   
 $\Rightarrow 37x(x - 3) + 62(x - 3) = 0$   
 $\Rightarrow (37x + 62)(x - 3) = 0$

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

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 x lies between the y's root values. Hence, relationship between x and y cannot be determined.

Hence, option E is correct.

7. I.  $3x^2 - 8x - 16 = 0$   
 $\Rightarrow 3x^2 - 12x + 4x - 16 = 0$   
 $\Rightarrow 3x(x - 4) + 4(x - 4) = 0$   
 $\Rightarrow (3x + 4)(x - 4) = 0$

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

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 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.

8. I.  $x^2 - 13\sqrt{3}x + 108 = 0$   
 $\Rightarrow x^2 - 9\sqrt{3}x - 4\sqrt{3}x + 108 = 0$   
 $\Rightarrow x^2 - 9\sqrt{3}x - 4\sqrt{3}x + 108 = 0$   
 $\Rightarrow x(x - 9\sqrt{3}) - 4\sqrt{3}(x - 9\sqrt{3}) = 0$   
 $\Rightarrow (x - 9\sqrt{3})(x - 4\sqrt{3}) = 0$   
 $\Rightarrow x = 9\sqrt{3}, 4\sqrt{3}$

II.  $y^2 - 11\sqrt{3}y + 90 = 0$   
 $\Rightarrow y^2 - 6\sqrt{3}y - 5\sqrt{3}y + 90 = 0$   
 $\Rightarrow y(y - 6\sqrt{3}) - 5\sqrt{3}(y - 6\sqrt{3}) = 0$   
 $\Rightarrow (y - 5\sqrt{3})(y - 6\sqrt{3}) = 0$   
 $\therefore y = 5\sqrt{3}, 6\sqrt{3}$

While comparing the root values of x and y, we find that both values of y lie between the values of x. Hence, the relation between x and y can't be established.

Hence, option (E) is correct.

9. I.  $324x^2 - 9 = 0$   
 $\Rightarrow x^2 = \frac{1}{36}$

$\Rightarrow x = +\frac{1}{6}, -\frac{1}{6}$

II.  $(\sqrt{324})y + 3 = 0$   
 $\Rightarrow y = -\frac{1}{6}$

While comparing the root values of x and y, we find that one root value of x is equal to y's. Hence  $x \geq y$   
Hence, option (C) is correct.

10. 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.  $3y^2 - 19y + 28 = 0$   
 $\Rightarrow 3y^2 - 12y - 7y + 28 = 0$   
 $\Rightarrow 3y(y - 4) - 7(y - 4) = 0$   
 $\Rightarrow (3y - 7)(y - 4) = 0$   
 $\Rightarrow y = \frac{7}{3}, 4$

While comparing the root values of x and y, we find that root values of y lie between the root values of x. Hence, the relationship between x and y can't be determined.

Hence, option E is correct.

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