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## Quadratic Equation Questions for IBPS Clerk Pre, SBI Clerk Pre, RBI Assistant, LIC Assistant, RRB Scale 1 and LIC AAO Exams.

### Quadratic Equation Quiz 19

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.  $2x^2 + 31x + 119 = 0$   
II.  $2y^2 + 37y + 171 = 0$

- 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.  $49x^2 - 42x - 16 = 0$   
II.  $7y^2 + 37y + 10 = 0$

- 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.  $x^2 + 7x + 12 = 0$   
II.  $y^2 - 2y - 15 = 0$

- 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

4. I.  $x^2 - 20x + 91 = 0$   
II.  $2y^2 - 55y + 378 = 0$

- 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.  $x^2 + 14x + 45 = 0$   
II.  $y^2 + 16y + 63 = 0$

- 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.  $x^2 - 17.5x + 69 = 0$   
II.  $2y^2 - 25y + 78 = 0$

- 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

7. I.  $x^2 + 6x - 112 = 0$   
 II.  $y^2 + 22y + 112 = 0$

- 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.  $2x^2 + 11\sqrt{3}x + 45 = 0$   
 II.  $y^2 + 8\sqrt{3}y + 45 = 0$

- 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.  $x^2 + 9x + 20 = 0$   
 II.  $y^2 + y - 12 = 0$

- 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

10. I.  $3x^2 - 243 = 0$   
 II.  $12y^5 + 110y^4 = 0$

- 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

**Correct Answers:**

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

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## EXPLANATIONS:

1. I.  $2x^2 + 31x + 119 = 0$

$$2x^2 + 14x + 17x + 119 = 0$$

$$2x(x + 7) + 17(x + 7) = 0$$

$$(2x + 17)(x + 7) = 0$$

$$x = -\frac{17}{2}, -7$$

II.  $2y^2 + 37y + 171 = 0$

$$2y^2 + 18y + 19y + 171 = 0$$

$$2y(y + 9) + 19(y + 9) = 0$$

$$(2y + 19)(y + 9) = 0$$

$$y = -\frac{19}{2}, -9$$

For  $x = -\frac{17}{2}$ , and  $y = -\frac{19}{2}$ ,  $x > y$

For  $x = -\frac{17}{2}$ , and  $y = -9$ ,  $x > y$

For  $x = -7$ , and  $y = -\frac{19}{2}$ ,  $-9 < x > y$

Therefore,  $x > y$

Hence, option A is correct.

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2. I.  $49x^2 - 42x - 16 = 0$

$$49x^2 + 14x - 56x - 16 = 0$$

$$7x(7x + 2) - 8(7x + 2) = 0$$

$$(7x - 8)(7x + 2) = 0$$

$$x = \frac{8}{7}, -\frac{2}{7}$$

II.  $7y^2 + 37y + 10 = 0$

$$7y^2 + 35y + 2y + 10 = 0$$

$$7y(y + 5) + 2(y + 5) = 0$$

$$(7y + 2)(y + 5) = 0$$

$$y = -\frac{2}{7}, -5$$

For  $x = \frac{8}{7}$ , and  $y = -\frac{2}{7}, -5$   $x > y$

For  $x = -\frac{2}{7}$ , and  $y = -\frac{2}{7}$ ,  $x = y$

For  $x = -\frac{2}{7}$  and  $y = -5$   $x > y$

Therefore,  $x \geq y$

Hence, option C is correct.

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3. I.  $x^2 + 7x + 12 = 0$   
 $x^2 + 4x + 3x + 12 = 0$   
 $x(x + 4) + 3(x + 4) = 0$   
 $(x + 4)(x + 3) = 0$   
 $x = -4, -3$

II.  $y^2 - 2y - 15 = 0$   
 $y^2 - 5y + 3y - 15 = 0$   
 $y(y - 5) + 3(y - 5) = 0$   
 $(y - 5)(y + 3) = 0$   
 $y = 5, -3$

For  $x = -4$  and  $y = 5$  or  $-3$   $x < y$

For  $x = -3$ ,  $y = -3$ ,  $x = y$

For  $x = -3$ ,  $y = 5$ ,  $x < y$

Therefore,  $x \leq y$

Hence, option B is correct.

4. I.  $x^2 - 20x + 91 = 0$   
 $x^2 - 7x - 13x + 91 = 0$   
 $x(x - 7) - 13(x - 7) = 0$   
 $(x - 7)(x - 13) = 0$   
 $x = 7, 13$

II.  $2y^2 - 55y + 378 = 0$   
 $2y^2 - 27y - 28y + 378 = 0$   
 $y(2y - 27) - 14(2y - 27) = 0$   
 $(y - 14)(2y - 27) = 0$   
 $y = 14, \frac{27}{2} = 13.5$

For  $x = 7$  or  $13$ , and  $y = 14$   
 $x < y$

For  $x = 7$  or  $13$  and  $y = 13.5$   
 $x < y$

Therefore,  $x < y$

Hence, option D is correct.

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5. I.  $x^2 + 14x + 45 = 0$

$$x^2 + 9x + 5x + 45 = 0$$

$$x(x + 9) + 5(x + 9) = 0$$

$$(x + 5)(x + 9) = 0$$

$$x = -5, -9$$

II.  $y^2 + 16y + 63 = 0$

$$y^2 + 7y + 9y + 63 = 0$$

$$y(y + 7) + 9(y + 7) = 0$$

$$(y + 7)(y + 9) = 0$$

$$y = -7, -9$$

For  $x = -5$ , and  $y = -7$  OR  $-9$   $x > y$

For  $x = -9$ , and  $y = -9$ ,  $x = y$

For  $x = -9$  and  $y = -7$ ,  $x < y$

Therefore, relationship cannot be established

Hence, option E is correct.

6. I.  $x^2 - 17.5x + 69 = 0$

$$x^2 - 11.5x - 6x + 69 = 0$$

$$x(x - 11.5) - 6(x - 11.5) = 0$$

$$(x - 11.5)(x - 6) = 0$$

$$x = 11.5, 6$$

II.  $2y^2 - 25y + 78 = 0$

$$2y^2 - 13y - 12y + 78 = 0$$

$$y(2y - 13) - 6(2y - 13) = 0$$

$$(2y - 13)(y - 6) = 0$$

$$y = 6.5, 6$$

For  $x = 11.5$  and  $y = 6.5, 6$   $x > y$

For  $x = 6$ , and  $y = 6.5, 6$   $x \leq y$

Therefore, relationship can't be established

Hence, option E is correct.

7. I.  $x^2 + 6x - 112 = 0$   
 $x^2 + 14x - 8x - 112 = 0$   
 $x(x + 14) - 8(x + 14) = 0$   
 $(x + 14)(x - 8) = 0$   
 $x = 8, -14$

II.  $y^2 + 22y + 112 = 0$   
 $y^2 + 8y + 14y + 112 = 0$   
 $y(y + 8) + 14(y + 8) = 0$   
 $(y + 8)(y + 14) = 0$   
 $y = -8, -14$

For,  $x = -14$  and  $y = -8$   
 $x < y$

For,  $x = -14$  and  $y = -14$   
 $x = y$

But for  $x = 8$  and  $y = -8$  and  $-14$   
 $x > y$

Therefore, relationship can't be established  
Hence, option E is correct.

8. I.  $2x^2 + 11\sqrt{3}x + 45 = 0$   
 $2x^2 + 6\sqrt{3}x + 5\sqrt{3}x + 45 = 0$   
 $2x(x + 3\sqrt{3}) + 5\sqrt{3}(x + 3\sqrt{3}) = 0$   
 $(2x + 5\sqrt{3})(x + 3\sqrt{3}) = 0$   
 $x = -3\sqrt{3}, -\frac{5}{2}\sqrt{3}$

II.  $y^2 + 8\sqrt{3}y + 45 = 0$   
 $y^2 + 5\sqrt{3}y + 3\sqrt{3}y + 45 = 0$   
 $y(y + 5\sqrt{3}) + 3\sqrt{3}(y + 5\sqrt{3}) = 0$   
 $(y + 5\sqrt{3})(y + 3\sqrt{3}) = 0$   
 $y = -5\sqrt{3}, -3\sqrt{3}$

For  $x = -3\sqrt{3}$  and  $y = -3\sqrt{3}$   $x = y$   
For  $x = -3\sqrt{3}$  and  $y = -5\sqrt{3}$   $x > y$

For  $x = -\frac{5}{2}\sqrt{3}$  and  $y = -5\sqrt{3}, -3\sqrt{3}$   $x > y$

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



9. I.  $x^2 + 9x + 20 = 0$   
 $x^2 + 5x + 4x + 20 = 0$   
 $x(x + 5) + 4(x + 5) = 0$   
 $(x + 4)(x + 5) = 0$   
 $x = -4, -5$

II.  $y^2 + y - 12 = 0$   
 $y^2 + 4y - 3y - 12 = 0$   
 $y(y + 4) - 3(y + 4) = 0$   
 $(y + 4)(y - 3) = 0$   
 $y = -4, 3$

For  $x = -4$  and  $y = -4$ ,  $x = y$

For  $x = -4$ ,  $y = 3$ ,  $x < y$

For  $x = -5$ ,  $y = -4$  or  $3$ ,  $x < y$

Therefore,  $x \leq y$

Hence, option B is correct.

10. I:  $3x^2 - 243 = 0$

$3x^2 = 243$ ,  $x^2 = 81$ ,  $x = \pm 9$

II:  $12y^5 + 1100y^4 = 0$

$12y^5 = -1100y^4$ ,

$y = -\frac{110}{12} = -9.16, 0$

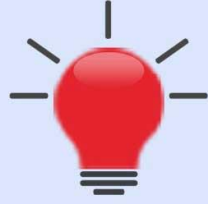
For  $x = 9$ , and  $y = -9.16, 0$   $x > y$

For  $x = -9$ , and  $y = -9.16$ ,  $x > y$

For  $x = -9$ , and  $y = 0$   $x < y$

Therefore, relationship cannot be established

Hence, option E is correct.



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