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

Quadratic Equation Quiz 18

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. $x^2 - 17.5x + 69 = 0$
       II. $4y^2 - 37y + 85 = 0$

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

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2.   I. $3x^2 + 59x + 238 = 0$
       II. $42y^2 + 397y + 925 = 0$

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

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3.   I. $3x^3 - 243x = 0$
       II. $144y^4 - 720y^3 = 0$

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

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4.   I. $35x^2 + 4x - 63 = 0$
       II. $55y^2 + 12y - 91 = 0$

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

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5.   I. $x^2 + 11x + 28 = 0$
       II. $y^2 + 7y + 12 = 0$

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

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6.   I. $x^2 - 12x + 35 = 0$
       II. $y^2 - 9.3y + 21.6 = 0$

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. $6x^2 + 73x + 220 = 0$
II. $3y^2 + 7y - 26 = 0$

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.

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8. I. $x^2 + 14x + 45 = 0$
II. $y^2 + 20y + 99 = 0$

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

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9. I. $x^2 - 16x + 63 = 0$
II. $3y^2 - 55y + 252 = 0$

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

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10. I. $x^3 - 125 = 0$
II. $y^4 - 625 = 0$

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	D	E	E	B	A	D	C	B	C

Explanations:

1. 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. $4y^2 - 37y + 85 = 0$

$4y^2 - 20y - 17y + 85 = 0$

$4y(y - 5) - 17(y - 5) = 0$

$(4y - 17)(y - 5) = 0$

$y = 5, \dfrac{17}{4}$

For x = 11.5, and y = 5 or $\dfrac{17}{4}$

x > y

For x = 6, and y = 5 or $\dfrac{17}{4}$

x > y

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

Therefore, x > y.

Hence, option A is correct.

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2. I. $3x^2 + 59x + 238 = 0$

$3x^2 + 17x + 42x + 238 = 0$

$x(3x + 17) + 14(3x + 17) = 0$

$(3x + 17)(x + 14) = 0$

$x = -\dfrac{17}{3}, -14$

II. $42y^2 + 397y + 925 = 0$

$42y^2 + 175y + 222y + 925 = 0$

$7y(6y + 25) + 37(6y + 25) = 0$

$(7y + 37)(6y + 25) = 0$

$y = -\dfrac{37}{7}, -\dfrac{25}{6}$

For x = $-\dfrac{17}{3}$, and y = $-\dfrac{37}{7}$ or $-\dfrac{25}{6}$

x < y

For x = -14, and y = $-\dfrac{37}{7}$ or $-\dfrac{25}{6}$

x < y

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

Therefore, x < y. Therefore, x < y. Hence, option D is correct.

3. I. $3x^3 - 243x = 0$

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

II. $144y^4 - 720y^3 = 0$

$144y^4 = 720y^3$, $y = 5$

For $x = 9$, and $y = 5$ $x > y$

For $x = -9$, and $y = 5$, $x < y$

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

Hence, option E is correct.

4. I. $35x^2 + 4x - 63 = 0$
$35x^2 + 49x - 45x - 63 = 0$
$7x(5x + 7) - 9(5x + 7) = 0$
$(7x - 9)(5x + 7) = 0$
$x = \dfrac{9}{7}, -\dfrac{7}{5}$

II. $55y^2 + 12y - 91 = 0$
$55y^2 + 77y - 65y - 91 = 0$
$11y(5y + 7) - 13(5y - 91) = 0$
$(11y - 13)(5y + 7) = 0$
$y = \dfrac{13}{11}, -\dfrac{7}{5}$

For $x = \dfrac{9}{7}$, and $y = \dfrac{13}{11}$ or $-\dfrac{7}{5}$

$x > y$ but

For $x = -\dfrac{7}{5}$, and $y = -\dfrac{7}{5}$, $x = y$,

$x = -\dfrac{7}{5}$ and $y = \dfrac{13}{11}$ then $x < y$

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

5. **I.** $x^2 + 11x + 28 = 0$
$x^2 + 7x + 4x + 28 = 0$
$x(x + 7) + 4(x + 7) = 0$
$(x + 4)(x + 7) = 0$
$x = -4, -7$

II. $y^2 + 7y + 12 = 0$
$y^2 + 4y + 3y + 12 = 0$
$y(y + 4) + 3(y + 4) = 0$
$(y + 4)(y + 3) = 0$
$y = -4, -3$
For $x = -4$ and $y = -4$, $x = y$
For $x = -4$, $y = -3$, $x < y$
For $x = -7$, $y = -4$, $x < y$
For $x = -7$, $y = -3$, $x < y$

Therefore, $x \leq y$

Hence, option B is correct.

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6. **I.** $x^2 - 12X + 35 = 0$
$x^2 - 7x - 5x + 35 = 0$
$x(x - 7) - 5(x - 7) = 0$
$(x - 7)(x - 5) = 0$
$x = 7, 5$

II. $y^2 - 9.3y + 21.6 = 0$
$y^2 - 4.8y - 4.5y + 21.6 = 0$
$y(y - 4.8) - 4.5(y - 4.8) = 0$
$(y - 4.8)(y - 4.5) = 0$
$y = 4.8, 4.5$

For $x = 7$, and $y = 4.8$ or 4.5
$x > y$
For $x = 5$, and $y = 4.8$ or 4.5
$x > y$

Therefore, $x > y$

Hence, option A is correct.

7.   **I.** $6x^2 + 73x + 220 = 0$
$6x^2 + 33x + 40x + 220 = 0$
$3x(2x + 11) + 20(2x + 11) = 0$
$(3x + 20)(2x + 11) = 0$
$x = -\dfrac{20}{3}, -\dfrac{11}{2}$

II. $3y^2 + 7y - 26 = 0$
$3y^2 + 13y - 6y - 26 = 0$
$y(3y + 13) - 2(3y + 13) = 0$
$(3y + 13)(y - 2) = 0$
$y = -\dfrac{13}{3}, 2$

For $x = -\dfrac{20}{3}$, and $y = -\dfrac{13}{3}$, or 2
$x < y$
For $x = -\dfrac{11}{2}$, and $y = -\dfrac{13}{3}$, or 2
$x < y$

Therefore, $x < y$

Hence, option D is correct.

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8.   **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. $y^2 + 20y + 99 = 0$
$y^2 + 11y + 9y + 99 = 0$
$y(y + 11) + 9(y + 11) = 0$
$(y + 11)(y + 9) = 0$
$y = -11, -9$

For $x = -5$, and $y = -11$, or -9
$x > y$
For $x = -9$, and $y = -11$,
$x > y$
For $x = -9$, and $y = -9$
$x = y$
Therefore, $x \geq y$
Hence, option C is correct.

9. **I.** $x^2 - 16x + 63 = 0$
$x^2 - 7x - 9x + 63 = 0$
$x(x - 7) - 9(x - 7) = 0$
$(x - 7)(x - 9) = 0$
$x = 7, 9$

II. $3y^2 - 55y + 252 = 0$
$3y^2 - 27y - 28y + 252 = 0$
$3y(y - 9) - 28(y - 9) = 0$
$(3y - 28)(y - 9) = 0$
$y = 9, \dfrac{28}{3}$

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

For x = 7, and y = $\dfrac{28}{3}$

x < y

For x = 9, and y = $\dfrac{28}{3}$

x < y
For x = 9, y = 9
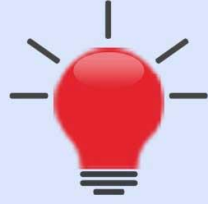x = y

Therefore $x \leq y$.

Hence, option B is correct.

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10. **I.** $x^3 - 125 = 0$
$x^3 = 125$
$x = 5$

II. $y^4 - 625 = 0$
$y = +5, -5$

Therefore, $x \geq y$

Hence, option C is correct.