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

Quadratic Equation Quiz 11

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. $798x^2 + 257x + 20 = 0$
II. $1176y^2 + 406y + 35 = 0$

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

2.   I. $5x^2 - 16x - 16 = 0$
II. $5y^2 - 21y - 20 = 0$

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

3.   I. $396x^2 - 11 = 0$
II. $\sqrt{2916}\ y + 9 = 0$

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

4.   I. $14x^2 - 89x + 95 = 0$
II. $17y^2 - 88y + 80 = 0$

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

5.   I. $x^2 - 14\sqrt{2}x + 96 = 0$
II. $y^2 - 11.5\sqrt{2}y + 66 = 0$

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

6.   I. $225x^2 - 31 = 33$
II. $\sqrt{900}\ y + 9 = 25$

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.** $4x^2 + 17x - 15 = 0$
II. $6y^2 + 19y - 20 = 0$

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.** $x^2 + 21x - 1696 = 0$
II. $y^2 + 20y - 1664 = 0$

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.** $8x^2 + 14x - 39 = 0$
II. $2y^2 - 13y + 15 = 0$

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.** $14x^2 - 69x + 70 = 0$
II. $6y^2 + 11y + 4 = 0$

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
E	E	C	E	C	B	E	E	B	A

Explanations:

1. **I.** $798x^2 + 257x + 20 = 0$
$798x^2 + 152x + 105x + 20 = 0$
$38x (21x + 4) + 5(21x + 4) = 0$
$(38x + 5)(21x + 4) = 0$

$x = -\dfrac{5}{38}, -\dfrac{4}{21} = -0.13, -0.19$ (approximately)

II. $1176y^2 + 406y + 35 = 0$
$1176y^2 + 210y + 196y + 35 = 0$
$42y(28y + 5) + 7(28y + 5) = 0$
$(42y + 7)(28y + 5) = 0$
$y = -\dfrac{7}{42}, -\dfrac{5}{28} = -0.17, -0.18$ (approximately)

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

2.   **I.** $5x^2 - 16x - 16 = 0$

$5x^2 - 20x + 4x - 16 = 0$

$5x(x - 4) + 4(x - 4) = 0$

$(5x + 4)(x - 4) = 0$

$x = -\dfrac{4}{5},\ 4$

II. $5y^2 - 21y - 20 = 0$

$5y^2 - 25y + 4y - 20 = 0$

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

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

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

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

Hence, option E is correct.

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3.   **I.** $396x^2 - 11 = 0$

$x = +\dfrac{1}{6},\ -\dfrac{1}{6}$

II. $\sqrt{2916}\ y + 9 = 0$

$y = -\dfrac{9}{54} = -\dfrac{1}{6}$

Therefore, x ≥ y

Hence, option C is correct.

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4.   **I.** $14x^2 - 89x + 95 = 0$

$14x^2 - 70x - 19x + 95 = 0$

$14x(x - 5) - 19(x - 5) = 0$

$(14x - 19)(x - 5) = 0$

$x = \dfrac{19}{14},\ 5$

II. $17y^2 - 88y + 80 = 0$

$17y^2 - 68y - 20y + 80 = 0$

$17y(y - 4) - 20(y - 4) = 0$

$(17y - 20)(y - 4) = 0$

$y = \dfrac{20}{17},\ 4$

Therefore, relation can't be established

Hence, option E is correct.

5. **I**. $x^2 - 14\sqrt{2}x + 96 = 0$
$x^2 - 6\sqrt{2}x - 8\sqrt{2}x + 96 = 0$
$x(x - 6\sqrt{2}) - 8\sqrt{2}(x - 6\sqrt{2}) = 0$
$(x - 6\sqrt{2})(x - 8\sqrt{2}) = 0$
$x = 6\sqrt{2}, 8\sqrt{2}$

II. $y^2 - 11.5\sqrt{2}y + 66 = 0$
$y^2 - 6\sqrt{2}y - 5.5\sqrt{2}y + 66 = 0$
$y(y - 6\sqrt{2}) - 5.5\sqrt{2}(y - 6\sqrt{2}) = 0$
$(y - 6\sqrt{2})(y - 5.5\sqrt{2}) = 0$
$y = 6\sqrt{2}, 5.5\sqrt{2}$

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

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6. **I**. $225x^2 - 64 = 0$
$x = + \dfrac{8}{15}, - \dfrac{8}{15}$

II. $\sqrt{900}\, y = 16$
$y = + \dfrac{16}{30} = \dfrac{8}{15}$

∴ $x \leq y$

Hence, option B is correct.

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7. **I**. $4x^2 + 17x - 15 = 0$
$4x^2 + 20x - 3x - 15 = 0$
$4x(x + 5) - 3(x + 5) = 0$
$(4x - 3)(x + 5) = 0$
$x = \dfrac{3}{4} = 0.75, - 5$

II. $6y^2 + 19y - 20 = 0$
$6y^2 + 24y - 5y - 20 = 0$
$6y(y + 4) - 5(y + 4) = 0$
$(6y - 5)(y + 4) = 0$
$y = \dfrac{5}{6} = 0.83, - 4$

∴ The relationship between x and y cannot be established

Hence, option E is correct.

8.   **I.** $x^2 + 21x - 1696 = 0$
$x^2 + 53x - 32x + 32 \times 53 = 0$
$x(x + 53) - 32(x + 53) = 0$
$(x + 53)(x - 32) = 0$
$x = -53, 32$

II. $y^2 + 20y - 1664 = 0$
$y^2 + 52y - 32y - 1664 = 0$
$y(y + 52) - 32(y + 52) = 0$
$(y + 52)(y - 32) = 0$
$y = -52, 32$

∴ The relationship between x and y cannot be established

Hence, option E is correct.

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9.   **I.** $8x^2 + 14x - 39 = 0$
$8x^2 + 26x - 12x - 39 = 0$
$2P(4x + 13) - 3(4x + 13) = 0$
$(2x - 3)(4x + 13) = 0$

If $2x - 3 = 0$ then $x = \dfrac{3}{2}$

If $4x + 13 = 0$ then $x = -\dfrac{13}{4}$

II. $2y^2 - 13y + 15 = 0$
$2y^2 - 10y - 3y + 15 = 0$
$2y(y - 5) - 3(y - 5) = 0$
$(2y - 3)(y - 5) = 0$

If $2y - 3 = 0$ then $y = \dfrac{3}{2}$

If $y - 5 = 0$ then $y = 5$

As, $x = -\dfrac{13}{4}$ or $x = \dfrac{3}{2}$ and $y = 5$ gives $x < y$

As, $x = -\dfrac{13}{4}$ or $x = \dfrac{3}{2}$ and $y = \dfrac{3}{2}$ gives $x \le y$

Hence, option B is correct.

10.

I. $14x^2 - 69x + 70 = 0$

$14x^2 - 49x - 20x + 70 = 0$

$7x(2x - 7) - 10(2x - 7) = 0$

$(7x - 10)(2x - 7) = 0$

If $7x - 10 = 0$ then $x = \dfrac{10}{7}$

If $2x - 7 = 0$ then $x = \dfrac{7}{2}$

II. $6y^2 + 11y + 4 = 0$

$6y^2 + 8y + 3y + 4 = 0$

$2y(3y + 4) + (3y + 4) = 0$

$(3y + 4)(2y + 1) = 0$

If $3y + 4 = 0$ then $y = -\dfrac{4}{3}$

If $2y + 1 = 0$ then $y = -\dfrac{1}{2}$

As, $x = \dfrac{7}{2}$ or $x = \dfrac{10}{7}$ and $y = -\dfrac{4}{3}$ or $y = -\dfrac{1}{2}$ gives $x > y$

Hence, $x > y$

Hence option A is correct.