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

Quadratic Equation Quiz 2

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.** $\frac{21}{\sqrt{x}} + \frac{11}{\sqrt{x}} = 7\sqrt{x}$ **II.** $2y^2 - 11y + 12 = 0$

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

2.   **I.** $143x^2 + 43x - 66 = 0$ **II.** $33y^2 - 40y + 12 = 0$

A. if x = y or relationship between x and y can't be established   B. if x < y
C. if x ≤ y   D. if x ≥ y   E. if x > y

3.   **I.** $72x^2 - 101x + 35 = 0$ **II.** $45y^2 - 62y + 21 = 0$

A. if x > y   B. if x ≤ y   C. if x = y or relationship between x and y can't be established
D. if x ≥ y   E. if x < y

4.   **I.** $22x^2 + 6\sqrt{11x} - 8 = 0$ **II.** $3y^2 + 14y - 5 = 0$

A. if x = y or relationship between x and y can't be established   B. if x > y
C. if x ≤ y   D. if x < y   E. if x ≥ y

5.   **I.** $56x^2 + 15x - 56 = 0$ **II.** $7y^2 - 34y - 48 = 0$

A. if x < y   B. if x = y or relationship between x and y can't be established
C. if x > y   D. if x ≥ y   E. if x ≤ y

6.   **I.** $45x^2 + 17\sqrt{15x} + 24 = 0$**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

7.   **I.** $\frac{4}{\sqrt{x}} + \frac{6}{\sqrt{x}} = 5\sqrt{x}$ **II.** $y^2 + \sqrt{256} = \sqrt{625}$

A. if x > y   B. if x < y   C. if x ≤ y
D. if x = y or relationship between x and y can't be established   E. if x ≥ y

8.   **I. $117x^2 + 128x + 35 = 0$**   **II. $39y^2 - 31y - 28 = 0$**

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. $36x^2 + 55x + 21 = 0$**   **II. $132y^2 - 17y - 30 = 0$**

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. $12x^2 - 29x + 15 = 0$**   **II. $54y^2 - 20\sqrt{18} + 33 = 0$**
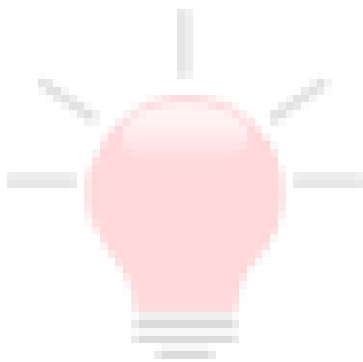
A. if x > y   B. if x ≤ y   C. if x ≥ y
D. if x = y or relationship between x and y can't be established   E. if x < y

Correct Answers:

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

Explanations:

1. I. $\frac{21}{\sqrt{x}} + \frac{11}{\sqrt{x}} = 7\sqrt{x}$

$\frac{21 + 11}{\sqrt{x}} = 7\sqrt{x}$

$\frac{32}{\sqrt{x}} = 7\sqrt{x}$

$x = \frac{32}{7}$

II. $2y^2 - 11y + 12 = 0$
$2y^2 - 8y - 3y + 12 = 0$
$2y(y - 4) - 3(y - 4) = 0$
$(2y - 3)(y - 4) = 0$
$y = \frac{3}{2}, 4$

$x > y$
Hence, option A is correct.

2. I. $143x^2 + 43x - 66 = 0$
or, $143x^2 + (121 - 78)x - 66 = 0$
or, $143x^2 + 121x - 78x - 66 = 0$
or, $11x(13x + 11) - 6(13x + 11) = 0$
or, $(13x + 11)(11x - 6) = 0$
$x = \frac{6}{11}, -\frac{11}{13}$

II. $33y^2 - 40y + 12 = 0$
or, $33y^2 - (22 + 18)y + 12 = 0$
or, $33y^2 - 22y - 18y + 12 = 0$
or, $11y(3y - 2) - 6(3y - 2) = 0$
or, $(11y - 6)(3y - 2) = 0$

$y = \frac{6}{11}, \frac{2}{3}$

$x \leq y$
Hence, option C is correct.

3.   I. $72x^2 - 101x + 35 = 0$

or, $72x^2 - (56 + 45)x + 35 = 0$

or, $72x^2 - 56x - 45x + 35 = 0$

or, $8x(9x - 7) - 5(9x - 7) = 0$

$(8x - 5)(9x - 7) = 0$

$x = \dfrac{5}{8}, \dfrac{7}{9}$

II. $45y^2 - 62y + 21 = 0$

or, $45y^2 - (35 + 27)y + 21 = 0$

or, $45y^2 - 35y - 27y + 21 = 0$

or, $5y(9y - 7) - 3(9y - 7) = 0$

$(5y - 3)(9y - 7) = 0$

$y = \dfrac{3}{5}, \dfrac{7}{9}$

While comparing the values of x and y, one root value of x lies between the two root values of y

Hence, option C is correct.

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4.   I. $22x^2 + 6\sqrt{11x} - 8 = 0$

or, $22x^2 + (8\sqrt{11} - 2\sqrt{11})x - 8 = 0$

or, $22x^2 + 8\sqrt{11}x - 2\sqrt{11}x - 8 = 0$

or, $2\sqrt{11}x(\sqrt{11x} + 4) - 2(\sqrt{11}x + 4) = 0$

$(2\sqrt{11}x - 2)(\sqrt{11x} + 4) = 0$

$x = \dfrac{1}{11}, -\dfrac{4}{11},$

II. $3y^2 + 14y - 5 = 0$

or, $3y^2 + (15 - 1)y - 5 = 0$

or, $3y^2 + 15y - y - 5 = 0$

or, $3y(y + 5) - 1(y + 5) = 0$

$(3y - 1)(y + 5) = 0$

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

While comparing the values of x and y, one root value of y lies between the root values of x

Hence, option A is correct.

5.   **I.** $56x^2 + 15x - 56 = 0$

or, $56x^2 + (64 - 49)x - 56 = 0$

or, $56x^2 + 64x - 49x - 56 = 0$

or, $8x(7x + 8) - 7(7x + 8) = 0$

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

$x = \dfrac{7}{8}, -\dfrac{8}{7}$

II. $7y^2 - 34y - 48 = 0$

or, $7y^2 - (42 - 8)y - 48 = 0$

or, $7y^2 - 42y + 8y - 48 = 0$

or, $7y(y - 6) + 8(y - 6) = 0$

$(7y + 8)(y - 6) = 0$

$y = -\dfrac{8}{7}, 6$

While comparing the values of x and y, one root value of y lies between the root values of x
Hence, option B is correct.

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6.   **I.** $45x^2 + 17\sqrt{15}x + 24 = 0$

$45x^2 + 9\sqrt{15}x + 8\sqrt{15}x + 24 = 0$

$3\sqrt{15}x(\sqrt{15}x + 3) + 8(\sqrt{15}x + 3) = 0$

$(\sqrt{15}x + 3)(3\sqrt{15}x + 8) = 0$

$x = -\dfrac{3}{\sqrt{15}}, -\dfrac{8}{3\sqrt{15}}$

II. $y^2 + 7y + 12 = 0$

$y^2 + 4y + 3y + 12 = 0$

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

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

$y = -4, -3$

$x > y$

Hence, option A is correct.

7.   I. $\frac{4}{\sqrt{x}} + \frac{6}{\sqrt{x}} = 5\sqrt{x}$

or, $\frac{4+6}{\sqrt{x}} = 5\sqrt{x}$

10 = 5x

x = 2

II. $y^2 + \sqrt{256} = \sqrt{625}$

$y^2 + 16 = 25$

$y^2 = 25 - 16$

$y^2 = 9$

y = ± 3

While comparing the values of x and y, one root value of y lies between the two root values of x

Hence, option D is correct.

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8.   I. $117x^2 + 128x + 35 = 0$

$117x^2 + 65x + 63x + 35 = 0$

13x (9x + 5) + 7 (9x +5) = 0

(13x + 7) (9x + 5) = 0

$x = -\frac{7}{13}, -\frac{5}{9}$

II. $39y^2 - 31y - 28 = 0$

$39y^2 - 52y + 21y - 28 = 0$

13y (3y − 4) + 7 (3y − 4) = 0

(3y − 4) (13y + 7) = 0

$y = \frac{4}{3}, -\frac{7}{13}$

x ≤ y

Hence, option B is correct.

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9.   I. $36x^2 + 55x + 21 = 0$

$36x^2 + 28x + 27x + 21 = 0$

4x (9x + 7) + 3 (9x + 7) = 0

(9x + 7) (4x + 3) = 0

$x = -\frac{7}{9}, -\frac{3}{4}$

II. $132y^2 - 17y - 30 = 0$

$132y^2 - 72y + 55y - 30 = 0$

12y (11y − 6) + 5 (11y − 6) = 0

(11y − 6) (12y + 5) = 0

$y = \frac{6}{11}, -\frac{5}{12}$

x < y

Hence, option C is correct.

10.   **I.** $12x^2 - 29x + 15 = 0$

$12x^2 - 20x - 9x + 15 = 0$

$4x(3x - 5) - 3(3x - 5) = 0$

$(3x - 5)(4x - 3) = 0$

$x = \dfrac{5}{3}, \dfrac{3}{4}$

II. $54y^2 - 20\sqrt{18}y + 33 = 0$
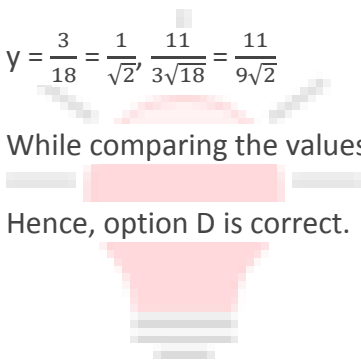
$54y^2 - 11\sqrt{18}y - 9\sqrt{18}y + 33 = 0$

$\sqrt{18}y\,(3\sqrt{18}y - 11) - 3(3\sqrt{18}y - 11) = 0$

$(\sqrt{18}y - 3)(3\sqrt{18}y - 11) = 0$

$y = \dfrac{3}{\sqrt{18}} = \dfrac{1}{\sqrt{2}}, \dfrac{11}{3\sqrt{18}} = \dfrac{11}{9\sqrt{2}}$

While comparing the values of x and y, one root value of y lies between the root values of x.

Hence, option D is correct.