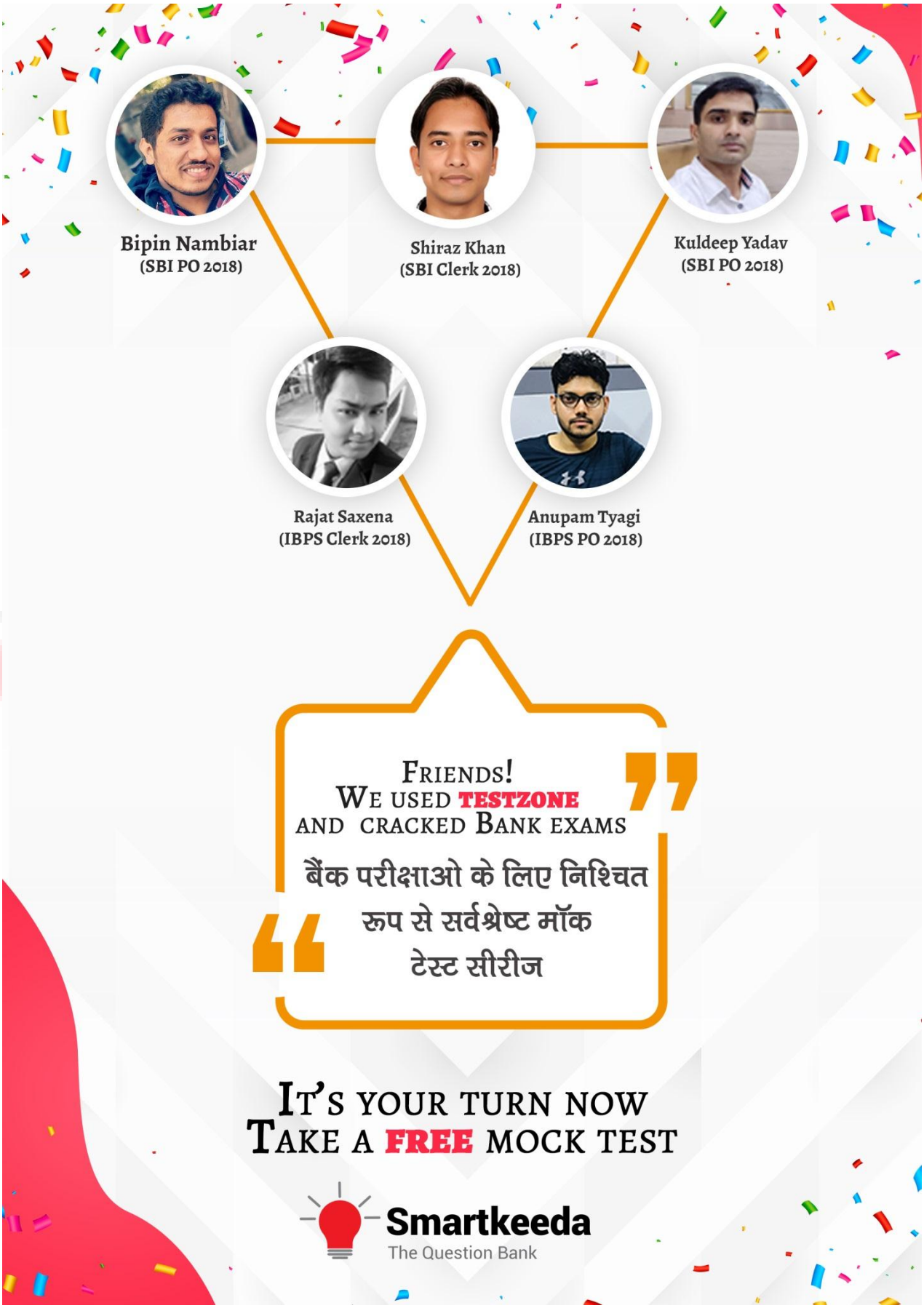
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The Question Bank

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

Quadratic Equation Quiz 20

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.** $x^2 + (343)^{1/3} = 56$
II. $(y)^{4/3} \times (y)^{5/3} - 295 = 217$

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.** $5x + 4y = 8$
II. $3x + 2y = 4$

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.** $x^2 + 8 = 6x$
II. $y^2 + 15 = 8y$

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.** $\sqrt{49} + \sqrt{x + 15} = \sqrt{169}$
II. $y^2 - 212 = 364$

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.** $x^2 - \frac{(10)^{5/2}}{\sqrt{x}} = 0$
II. $\frac{18}{\sqrt{y}} - \sqrt{y} = \frac{7}{\sqrt{y}}$

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.** $2x^2 + 7x + 5 = 0$
II. $3y^2 + 5y + 2 = 0$

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.** $2x^2 - 13x + 21 = 0$
II. $3y^2 - 14y + 15 = 0$

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.

---

8. **I.** $2x^2 - 13x + 18 = 0$
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

---

9. **I.** $x^2 + 6x + 9 = 0$
II. $y^2 - y - 20 = 0$

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

---

10. **I.** $3x^2 - 10x + 8 = 0$
II. $2y^2 - 19y + 35 = 0$

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

Correct Answers:

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

EXPLANATIONS:

1. **I.** $x^2 + (343)^{1/3} = 56$

$x^2 + 7 = 56$

$x^2 = 49$

$\therefore\ x = \sqrt{49} = \pm 7$

II. $(y)^{4/3} \times (y)^{5/3} - 295 = 217$

$(y)^3 = 217 + 295$

$(y)^3 = 512 = (8)^3$

or, $y = 8$

Here, $x < y$

Hence, option D is correct.

---

2. $5x + 4y = 8$ .....(i) × 3

$3x + 2y = 4$ .....(ii) × 5

$15x + 12y = 24$ .....(iii)
$15x + 10y = 20$ .....(iv)
– – –
$2y = 4$
$y = 2$

Putting the value of y in (i), we get

$5x + 8 = 8$

$5x = 0$

$\therefore x = 0$

Here, $x < y$

Hence, option D is correct.

3. **I.** $x^2 + 8 = 6x$

$x^2 - 6x + 8 = 0$

$x^2 - 4x - 2x + 8 = 0$

$x(x - 4) - 2(x - 4) = 0$

$(x - 2)(x - 4) = 0$

$\therefore x = 2, 4$

II. $y^2 - 8y + 15 = 0$

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

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

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

$y = 3, 5$

Here, while comparing the root values of x and y, we find that one root value of y lies between the value of x. Therefore, no relationship between x and y can be established

Hence, option E is correct.

4. **I.** $\sqrt{49} + \sqrt{x + 15} = \sqrt{169}$

$7 + \sqrt{x + 15} = 13$

$(\sqrt{x + 15})^2 = (6)^2$

$x + 15 = 36$

$\therefore x = 36 - 15 = 21$

II. $y^2 - 212 = 364$

$y^2 = 364 + 212$

$y^2 = 576$

$y = \pm 24$

Here, relationship between x and y cannot be established

Hence, option E is correct.

5.

I. $x^2 - \frac{(10)^{5/2}}{\sqrt{x}} = 0$

$x^{2+1/2} - (10)^{5/2} = 0$

$(x)^{5/2} = (10)^{5/2}$

$x = 10$

II. $\frac{18}{\sqrt{y}} - \sqrt{y} = \frac{7}{\sqrt{y}}$

$18 - y = 7$

$y = 11$

Here, $x < y$

Hence, option D is correct.

6.

I. $2x^2 + 7x + 5 = 0$
$\Rightarrow 2x^2 + 2x + 5x + 5 = 0$
$\Rightarrow 2x(x + 1) + 5(x + 1) = 0$
$\Rightarrow (2x + 5)(x + 1) = 0$
$x = -2.5, -1$

II. $3y^2 + 5y + 2 = 0$
$\Rightarrow 3y^2 + 3y + 2y + 2 = 0$
$\Rightarrow 3y(y + 1) + 2(y + 1) = 0$
$\Rightarrow (3y + 2)(y + 1) = 0$
$y = -0.66, -1$

For $x = -2.5$ and $y = -0.66, -1$ $x < y$

For $x = -1$ and $y = -0.66, -1$ $x \leq y$

Hence x is either less than or equal to y.

Hence, option B 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.** $2x^2 - 13x + 18 = 0$
$\Rightarrow 2x^2 - 4x - 9x + 18 = 0$
$\Rightarrow 2x(x - 2) - 9(x - 2) = 0$
$\Rightarrow (2x - 9)(x - 2) = 0$
$x = 4.5, 2$

II. $y^2 - 7y + 12 = 0$
$\Rightarrow y^2 - 4y - 3y + 12 = 0$
$\Rightarrow y(y - 4) - 3(y - 4) = 0$
$\Rightarrow (y - 3)(y - 4) = 0$
$y = 4, 3$
For $x = 4.5$ and $y = 4, 3$ $x > y$

For $x = 2$ and $y = 4, 3$ $x < y$

Hence, no relationship can be established

Hence, option E is correct.

9. **I.** $x^2 + 6x + 9 = 0$

$\Rightarrow x^2 + 3x + 3x + 9 = 0$

$\Rightarrow x(x + 3) + 3(x + 3) = 0$

$\Rightarrow (x + 3)(x + 3) = 0$

$x = -3, -3$

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

$\Rightarrow y^2 - 5y + 4y - 20 = 0$

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

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

$y = -4, 5$

For $x = -3$ and $y = -4$, $x > y$

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

Hence, no relationship can be established

Hence, option E is correct.

10. **I.** $3x^2 - 10x + 8 = 0$
$\Rightarrow 3x^2 - 6x - 4x + 8 = 0$
$\Rightarrow 3x(x - 2) - 4(x - 2) = 0$
$\Rightarrow (3x - 4)(x - 2) = 0$
$x = 4/3, 2$

II. $2y^2 - 19y + 35 = 0$
$\Rightarrow 2y^2 - 14y - 5y + 35 = 0$
$\Rightarrow 2y(y - 7) - 5(y - 7) = 0$
$\Rightarrow (2y - 5)(y - 7) = 0$
$y = 2.5, 7$

Hence, $x < y$

Hence, option D is correct.