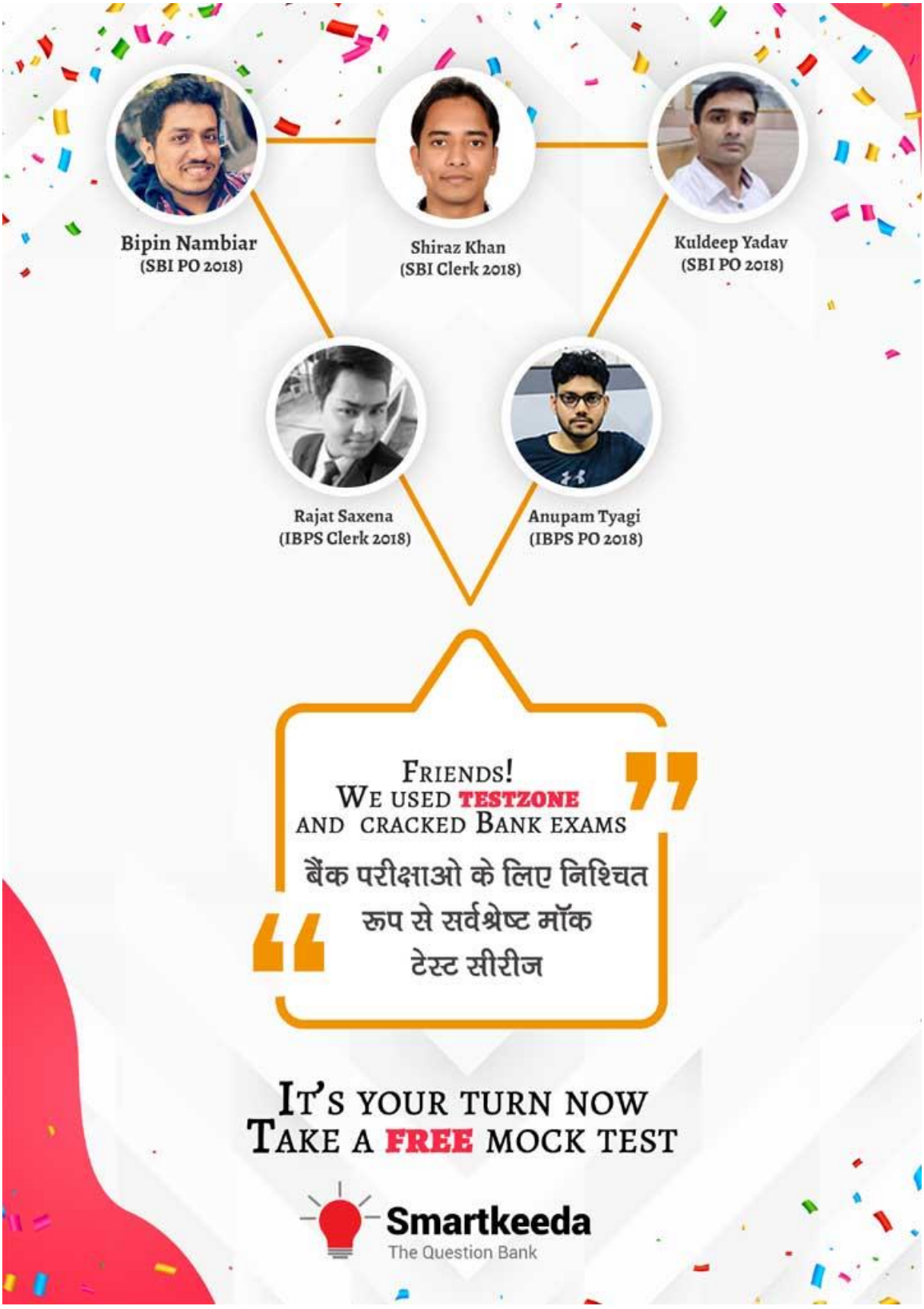
Bipin Nambiar
(SBI PO 2018)
Shiraz Khan
(SBI Clerk 2018)
Kuldeep Yadav
(SBI PO 2018)
Rajat Saxena
(IBPS Clerk 2018)
Anupam Tyagi
(IBPS PO 2018)
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The Question Bank

Quadratic Equation Questions for SBI Clerk Mains, IBPS Clerk Mains, RBI Assistant Mains, LIC AAO, SBI PO Pre, IBPS PO Pre and RRB Scale I Pre Exams.

Quadratic Eqn. Quiz 28

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.** $8x^2 - 22x + 12 = 0$
II. $15y^2 - 19y + 6 = 0$

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

2. **I.** $9x^2 - 24x + 16 = 0$

II. $\frac{1}{y^{1/3}} - \frac{1}{y^{2/3}} = 5y^{-2/3}$

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.** $20x^2 - 119x + 176 = 0$

II. $\frac{6y^3 - 13y^2 - 10y + 24}{3y + 4} = 0$

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

4. **I.** $3x^2 + 17x + 10 = 0$
II. $10y^2 + 9y + 2 = 0$

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

5. **I.** $x^{3/2} - \frac{81}{\sqrt{x}} = 0$

II. $\sqrt{16}y^2 = \sqrt{10^2 - 19}) = 0$

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.** $x^2 - 4x - 221 = 0$

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

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.** $x^2 + 31x + 228 = 0$
II. $y^2 + 28y + 187 = 0$

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

8. **I.** $4x^2 - 20x + 24 = 0$
II. Two dices are thrown simultaneously. the probability that the sum of the face numbers is odd is y/4. What is the value of 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

9. **I.** $x^2 + 14x - 1247 = 0$
II. B can be reached from A in 3 ways; C can be reached from B in 2 ways; D can be reached from C in 5 ways and E can be reached from D is 2 ways. If the total number of ways to reach E from A is y ,find the value of 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

10. **I.** $2y^2 - 15y + 28 = 0$
II. X- The product of LCM and HCF of two number is 24. If the difference of the two numbers is 2,then find the numbers

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	A	D	E	E	E	C	D	C

Explanations:

1. **I.** $8x^2 - 22x + 12 = 0$

$\Rightarrow 8x^2 - 16x - 6x + 12 = 0$
$\Rightarrow 8x(x - 2) - 6(x - 2) = 0$
$\Rightarrow (8x - 6)(x - 2) = 0$

$\Rightarrow x = \frac{6}{8} = 3/4, 2$

II. $15y^2 - 19y + 6 = 0$
$\Rightarrow 15y^2 - 10y - 9y + 6 = 0$
$\Rightarrow 5y(3y - 2) - 3(3y - 2) = 0$
$\Rightarrow (5y - 3)(3y - 2) = 0$

$\Rightarrow y = \frac{3}{5}, \frac{2}{3}$

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

Hence, option A is correct.

2. **I.** $9x^2 - 24x + 16 = 0$
$\Rightarrow 9x^2 - 12x - 12x + 16 = 0$
$\Rightarrow 3x(3x - 4) - 4(3x - 4) = 0$
$(3x - 4)(3x - 4) = 0$

$x = \frac{4}{3}$

II. $\frac{1}{y^{1/3}} - \frac{1}{y^{2/3}} = 5y^{-2/3}$

$\Rightarrow y^{2/3} - y^{1/3} = 5 \times y^{-2/3} \times y^{1/3} \times y^{2/3}$
$\Rightarrow y^{1/3} \times (y^{1/3} - 1) = 5y^{1/3}$
$\Rightarrow 5y^{1/3} - y^{1/3} \times (y^{1/3} - 1) = 0$
$\Rightarrow y^{1/3} \times (5 - y^{1/3} + 1) = 0$
$\Rightarrow y^{1/3} = 0$ and $y^{1/3} = 6$

But y can't be 0 because if we put 0 in the equation the value becomes undefined. So the possible value of y is 216.

So the root of y is greater than x.

Hence, option (D) is correct.

3. **I.** $20x^2 - 119x + 176 = 0$
$20x^2 - 64x - 55x + 176 = 0$
$4x(5x - 16) - 11(5x - 16) = 0$

$(5x - 16)(4x - 11) = 0$

$x = \frac{16}{5}, \frac{11}{4}$

II. $\frac{6y^3 - 13y^2 - 10y + 24}{3y + 4} = 0$

$\Rightarrow \frac{(y - 2)(3y + 4)(2y - 3)}{3y + 4} = 0$

$\Rightarrow (y - 2)(2y - 3) = 0$

$\Rightarrow y = 2, \frac{3}{2}$

While comparing the values of x and y, both root values of y is less than the root values of x.

Hence, option A is correct.

4. **I.** $3x^2 + 17x + 10 = 0$
or, $3x^2 + 15x + 2x + 10 = 0$
or, $3x(x + 5) + 2(x + 5) = 0$
or, $(x + 5)(3x + 2) = 0$

$\therefore x = -\frac{2}{3}, -5$

$x = -0.67, -5$

II. $10y^2 + 9y + 2 = 0$
or, $10y^2 + 5y + 4y + 2 = 0$
or, $5y(2y + 1) + 2(2y + 1) = 0$
or, $(2y + 1)(5y + 2) = 0$

$\therefore y = -\frac{2}{5}, -\frac{1}{2}$

$y = -0.40, -0.5$

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

5.

I. $x^{3/2} - \frac{81}{\sqrt{x}} = 0$

or, $\frac{(x^{3/2} \times \sqrt{x} - 81)}{\sqrt{x}} = 0$

$x^{3/2} \times x^{1/2} - 81 = 0$

$x^2 = 81$

$x = \pm 9$

II. $\sqrt{16}y^2 = \sqrt{10^2 - 19}) = 0$

$\Rightarrow y^2 = \sqrt{\frac{81}{16}}$

$\Rightarrow y = \frac{3}{2}, -\frac{3}{2}$

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

Hence, option (E) is correct.

6. **I.** $x^2 - 4x - 221 = 0$

$\Rightarrow x^2 - 17x + 13x - 221 = 0$
$\Rightarrow x(x - 17) + 13(x - 17) = 0$
$\Rightarrow (x - 17)(x + 13) = 0$

$\Rightarrow x = 17, -13$

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

$\Rightarrow y^2 - 12y + 11y - 132 = 0$
$\Rightarrow y(y - 12) + 11(y - 12) = 0$
$\Rightarrow (y + 11)(y - 12) = 0$

$\Rightarrow y = 12, -11$

Hence, no relationship can't be established

Hence, option E is correct.

7. **I.** $x^2 + 31x + 228 = 0$
or, $x^2 + 19x + 12x + 228 = 0$
or, $x(x + 19) + 12(x + 19) = 0$
or, $(x + 19)(x + 12) = 0$

$x = -19$ or $x = -12$

II. $y^2 + 28y + 187 = 0$
or, $y^2 + 17y + 11y + 187 = 0$
or, $y(y + 17) + 11(y + 17) = 0$
or, $(y + 17)(y + 11) = 0$
$y = -17$ or $y = -11$

Relation between x and y cannot be established

Hence, option E is correct.

8. **I.** $4x^2 - 20x + 24 = 0$
or, $x^2 - 5x + 6 = 0$
or, $x^2 - 3x - 2x + 6 = 0$
or, $x(x - 3) - 2(x - 3) = 0$
or, $(x - 2)(x - 3) = 0$
or, $x = 2$ or $x = 3$

II. Total outcome = 36 = n (s)
Favorable event = n (E)
Sum will be odd when one number is odd and another is even, for which there will be two cases

Case1 : Odd on dice 1 and even on dice 2.
1 – (2, 4, 6)
3 – (2, 4, 6) = 9
5 – (2, 4, 6)

Case 2: Even on dice 1 and odd on dice 2.
2 – (1, 3, 5)
4 – (1, 3, 5) = 9
6 – (1, 3, 5)

$P(E) = \frac{1}{2}$

Probability $= \frac{y}{4} = \frac{1}{2}$
$y = 2$
Clearly , $x \geq y$
Hence, option C is correct.

9. **I.** $x^2 + 14x - 1247 = 0$

or, $x^2 + 43x - 29x - 1247 = 0$

or, $x(x + 43) - 29(x + 43) = 0$

or, (x + 43) (x – 29) = 0

x = – 43 and x = 29

II. y = 3 × 2 × 5 × 2 = 60

Clearly x < y

Hence, option D is correct.

10. **I.** $2y^2 – 15y + 28 = 0$
or, $2y^2 – 8y – 7y + 28 = 0$
or, 2y(y – 4) – 7 (y – 4)
or, (2y – 7) (y – 4)

y = 4 and y = 3.5

II : xy = 24

[(24, 1) ; (12, 2) (8, 3) (6, 4) [24 can be writing as product of 2 number].

For (6 and 4) both conditions are implicit

x = 4 and 6
y = 4 and 3,5

x ≥ y

Hence, option C is correct.