

Quiz Date: 19th August 2020

Directions (1-15): In the following questions two equations numbered I and II are given. You have to solve both the equations and give answer

I. $x^2 = 144$

II. $y^2 - 24y + 144 = 0$

Q1.

- (a) If $x < y$
- (b) If $x \leq y$
- (c) If $y < x$
- (d) If $y \leq x$
- (e) If $x = y$ or if no relationship can be established.

I. $2x^2 - 9x + 10 = 0$

II. $2y^2 - 13y + 20 = 0$

Q2.

- (a) If $x < y$
- (b) If $x \leq y$
- (c) If $y < x$
- (d) If $y \leq x$
- (e) If $x = y$ or if no relationship can be established.

I. $2x^2 + 15x + 27 = 0$

II. $2y^2 + 7y + 6 = 0$

Q3.

- (a) If $x < y$
- (b) If $x \leq y$
- (c) If $y < x$
- (d) If $y \leq x$
- (e) If $x = y$ or if no relationship can be established.

I. $3x^2 - 13x + 12 = 0$

II. $3y^2 - 13y + 14 = 0$

Q4.

- (a) If $x < y$
- (b) If $x \leq y$
- (c) If $y < x$
- (d) If $y \leq x$
- (e) If $x = y$ or if no relationship can be established.

I. $5x^2 + 8x + 3 = 0$

II. $3y^2 + 7y + 4 = 0$

Q5.



- (a) If $x < y$
 (b) If $x \leq y$
 (c) If $y < x$
 (d) If $y \leq x$
 (e) If $x = y$ or if no relationship can be established.

I. $25x^2 + 35x + 12 = 0$

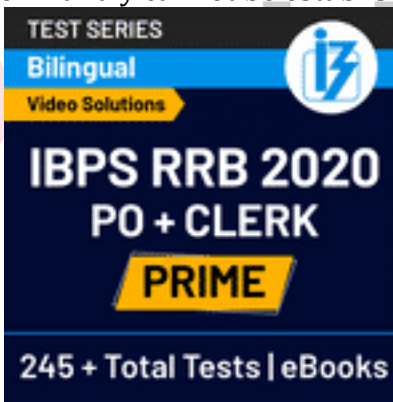
Q6. II. $10y^2 + 9y + 2 = 0$

- (a) $x \geq y$
 (b) $x \leq y$
 (c) $x < y$
 (d) $x > y$
 (e) $x = y$ or Relationship between x and y cannot be established

I. $12x^2 + 7x + 1 = 0$

Q7. II. $6y^2 + 5y + 1 = 0$

- (a) $x \geq y$
 (b) $x \leq y$
 (c) $x < y$
 (d) $x > y$
 (e) $x = y$ or Relationship between x and y cannot be established



I. $3x^2 - 13x - 10 = 0$

Q8. II. $3y^2 + 10y - 8 = 0$

- (a) $x \geq y$
 (b) $x \leq y$
 (c) $x < y$
 (d) $x > y$
 (e) $x = y$ or Relationship between x and y cannot be established

$$\text{I. } 2x^2 - 21x + 52 = 0$$

$$\text{II. } 2y^2 - 11y + 12 = 0$$

Q9.

- (a) $x \geq y$
- (b) $x \leq y$
- (c) $x < y$
- (d) $x > y$
- (e) $x = y$ or Relationship between x and y cannot be established

$$\text{I. } 3x^2 - 13x + 14 = 0$$

$$\text{II. } 2y^2 - 5y + 3 = 0$$

Q10.

- (a) $x \geq y$
- (b) $x \leq y$
- (c) $x < y$
- (d) $x > y$
- (e) $x = y$ or Relationship between x and y cannot be established

$$\text{I. } 3x^2 - 13x + 14 = 0$$

$$\text{II. } 3y^2 - 17y + 22 = 0$$

Q11.

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y .

$$\text{I. } 2x^2 + 9x + 9 = 0$$

$$\text{II. } 4y^2 + 9y + 5 = 0$$

Q12.

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$
- (d) if $x \leq y$
- (e) if $x = y$ or no relation can be established between x and y .

$$\text{I. } x^2 - 7x + 12 = 0$$

$$\text{II. } 2y^2 - 19y + 44 = 0$$

Q13.

- (a) if $x > y$
- (b) if $x \geq y$
- (c) if $x < y$

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- (d) if $x \leq y$
 (e) if $x = y$ or no relation can be established between x and y .

$$\text{I. } x^2 - 4x - 12 = 0$$

$$\text{II. } y^2 - 5y - 14 = 0$$

Q14.

- (a) if $x > y$
 (b) if $x \geq y$
 (c) if $x < y$
 (d) if $x \leq y$
 (e) if $x = y$ or no relation can be established between x and y .

$$\text{I. } 3x^2 - 22x + 40 = 0$$

$$\text{II. } 5y^2 - 21y + 16 = 0$$

Q15.

- (a) if $x > y$
 (b) if $x \geq y$
 (c) if $x < y$
 (d) if $x \leq y$
 (e) if $x = y$ or no relation can be established between x and y .

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Solutions

S1. Ans.(b)

Sol.

$$\text{I. } x^2 = 144$$

$$\Rightarrow x = \pm 12$$

$$\text{II. } y^2 - 24y + 144 = 0$$

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

$$\Rightarrow y - 12 = 0$$

$$\Rightarrow y = 12$$

$$\text{So, } x \leq y$$

S2. Ans.(b)

Sol.

$$\text{I. } 2x^2 - 9x + 10 = 0$$

$$\Rightarrow (x - 2)(2x - 5) = 0$$

$$\Rightarrow x = 2 \text{ or } \frac{5}{2}$$

$$\text{II. } 2y^2 - 13y + 20 = 0$$

$$\Rightarrow (y - 4)(2y - 5) = 0$$

$$\Rightarrow y = 4 \text{ or } \frac{5}{2}$$

$$\therefore y \geq x$$

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S3. Ans.(a)

Sol.

$$\begin{aligned} \text{I. } 2x^2 + 15x + 27 &= 0 \\ \Rightarrow (2x + 9)(x + 3) &= 0 \\ \Rightarrow x &= \frac{-9}{2} \text{ or } -3 \end{aligned}$$

$$\begin{aligned} \text{II. } 2y^2 + 7y + 6 &= 0 \\ \Rightarrow (2y + 3)(y + 2) &= 0 \\ \Rightarrow y &= -\frac{3}{2} \text{ or } -2 \end{aligned}$$

 $\therefore x < y$


S4. Ans.(e)

Sol.

$$\begin{aligned} \text{I. } 3x^2 - 13x + 12 &= 0 \\ \Rightarrow (3x - 4)(x - 3) &= 0 \\ \Rightarrow x &= \frac{4}{3} \text{ or } 3 \end{aligned}$$

$$\begin{aligned} \text{II. } 3y^2 - 13y + 14 &= 0 \\ \Rightarrow (3y - 7)(y - 2) &= 0 \\ \Rightarrow y &= \frac{7}{3} \text{ or } 2 \end{aligned}$$

So, no relation exists between x and y

S5. Ans.(d)

Sol.

$$\begin{aligned} \text{I. } 5x^2 + 8x + 3 &= 0 \\ \Rightarrow (5x + 3)(x + 1) &= 0 \\ \Rightarrow x &= \frac{-3}{5} \text{ or } -1 \end{aligned}$$

$$\begin{aligned} \text{II. } 3y^2 + 7y + 4 &= 0 \\ \Rightarrow (y + 1)(3y + 4) &= 0 \\ \Rightarrow y &= -1 \text{ or } \frac{-4}{3} \end{aligned}$$

So, $x \geq y$

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S6. Ans.(c)

Sol.

$$\begin{aligned} \text{I. } 25x^2 + 35x + 12 &= 0 \\ \Rightarrow 25x^2 + 20x + 15x + 12 &= 0 \\ \Rightarrow (5x + 4)(5x + 3) &= 0 \\ \Rightarrow x &= -\frac{4}{5}, -\frac{3}{5} \\ \text{II. } 10y^2 + 9y + 2 &= 0 \\ \Rightarrow 10y^2 + 5y + 4y + 2 &= 0 \\ \Rightarrow (2y + 1)(5y + 2) &= 0 \\ \Rightarrow y &= -\frac{1}{2}, -\frac{2}{5} \\ y &> x \end{aligned}$$

S7. Ans.(a)

Sol.

$$\begin{aligned} \text{I. } 12x^2 + 7x + 1 &= 0 \\ \Rightarrow 12x^2 + 4x + 3x + 1 &= 0 \\ \Rightarrow (3x + 1)(4x + 1) &= 0 \\ \Rightarrow x &= -\frac{1}{4}, -\frac{1}{3} \\ \text{II. } 6y^2 + 5y + 1 &= 0 \\ \Rightarrow (2y + 1)(3y + 1) &= 0 \\ \Rightarrow y &= -\frac{1}{2}, -\frac{1}{3} \\ x &\geq y \end{aligned}$$

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S8. Ans.(e)

Sol.

$$\begin{aligned} \text{I. } 3x^2 - 13x - 10 &= 0 \\ 3x^2 - 15x + 2x - 10 &= 0 \\ (x - 5)(3x + 2) &= 0 \\ x &= 5, -\frac{2}{3} \\ \text{II. } 3y^2 + 10y - 8 &= 0 \\ \Rightarrow 3y^2 + 12y - 2y - 8 &= 0 \\ \Rightarrow (y + 4)(3y - 2) &= 0 \\ \Rightarrow y &= -4, \frac{2}{3} \\ \text{No relation} \end{aligned}$$

S9. Ans.(a)

Sol.

$$\begin{aligned} \text{I. } & 2x^2 - 21x + 52 = 0 \\ & \Rightarrow 2x^2 - 8x - 13x + 52 = 0 \\ & \Rightarrow (x - 4)(2x - 13) = 0 \\ & \Rightarrow x = 4, \frac{13}{2} \\ \text{II. } & 2y^2 - 11y + 12 = 0 \\ & \Rightarrow 2y^2 - 8y - 3y + 12 = 0 \\ & \Rightarrow (y - 4)(2y - 3) = 0 \\ & \Rightarrow y = 4, \frac{3}{2} \\ & x \geq y \end{aligned}$$

S10. Ans.(d)

Sol.

$$\begin{aligned} \text{I. } & 3x^2 - 13x + 14 = 0 \\ & \Rightarrow 3x^2 - 6x - 7x + 14 = 0 \\ & \Rightarrow (x - 2)(3x - 7) = 0 \\ & \Rightarrow x = 2, \frac{7}{3} \\ \text{II. } & 2y^2 - 5y + 3 = 0 \\ & \Rightarrow 2y^2 - 2y - 3y + 3 = 0 \\ & \Rightarrow (y - 1)(2y - 3) = 0 \\ & \Rightarrow y = 1, \frac{3}{2} \\ & x > y \end{aligned}$$

S11. Ans.(e)

Sol.

$$\begin{aligned} \text{I. } & 3x^2 - 13x + 14 = 0 \\ & \Rightarrow 3x^2 - 6x - 7x + 14 = 0 \\ & \Rightarrow (x - 2)(3x - 7) = 0 \\ & \Rightarrow x = 2, \frac{7}{3} \\ \text{II. } & 3y^2 - 17y + 22 = 0 \\ & \Rightarrow 3y^2 - 6y - 11y + 22 = 0 \\ & \Rightarrow (y - 2)(3y - 11) = 0 \\ & \Rightarrow y = 2, \frac{11}{3} \\ & \text{No relation} \end{aligned}$$

S12. Ans.(c)

Sol.

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$$\text{I. } 2x^2 + 9x + 9 = 0$$

$$\Rightarrow 2x^2 + 6x + 3x + 9 = 0$$

$$\Rightarrow (x + 3)(2x + 3) = 0$$

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

$$\text{II. } 4y^2 + 9y + 5 = 0$$

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

$$\Rightarrow (y + 1)(4y + 5) = 0 \Rightarrow y = -1, -\frac{5}{4}$$

$$y > x$$

S13. Ans.(d)

Sol.

$$\text{I. } x^2 - 7x + 12 = 0$$

$$\Rightarrow (x - 3)(x - 4) = 0$$

$$\Rightarrow x = 3, 4$$

$$\text{II. } 2y^2 - 19y + 44 = 0$$

$$\Rightarrow 2y^2 - 8y - 11y + 44 = 0$$

$$\Rightarrow (y - 4)(2y - 11) = 0$$

$$\Rightarrow y = 4, \frac{11}{2}$$

$$y \geq x$$

S14. Ans.(e)

Sol.

$$\text{I. } x^2 - 4x - 12 = 0$$

$$\Rightarrow x^2 - 6x + 2x - 12 = 0$$

$$\Rightarrow (x - 6)(x + 2) = 0$$

$$\Rightarrow x = 6, -2$$

$$\text{II. } y^2 - 5y - 14 = 0$$

$$\Rightarrow y^2 - 7y + 2y - 14 = 0$$

$$\Rightarrow (y - 7)(y + 2) = 0$$

$$\Rightarrow y = 7, -2$$

No relation

S15. Ans.(a)

Sol.



$$\begin{aligned} \text{I. } & 3x^2 - 22x + 40 = 0 \\ & \Rightarrow 3x^2 - 12x - 10x + 40 = 0 \\ & \Rightarrow (x - 4)(3x - 10) = 0 \\ & \Rightarrow x = 4, \frac{10}{3} \\ \text{II. } & 5y^2 - 21y + 16 = 0 \\ & \Rightarrow 5y^2 - 5y - 16y + 16 = 0 \\ & \Rightarrow (y - 1)(5y - 16) = 0 \\ & \Rightarrow y = 1, \frac{16}{5} \\ & x > y \end{aligned}$$

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