Quiz Date: 2nd September 2020

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

Q1. **I** $2x^2 - 25x + 72 = 0$
II $4y^2 - 12y - 27 = 0$
(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or no relation can be established between x and y.

Q2. **I** $8x^2 - 26x + 21 = 0$
II $10y^2 - 43y + 28 = 0$
(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or no relation can be established between x and y.

Q3. **I** $x^2 - 18x + 65 = 0$
II $2y^2 - 17y + 35 = 0$
(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or no relation can be established between x and y.

Q4. **I** $7x^2 - 44x + 45 = 0$
II $7x - 8y = 19$
(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or no relation can be established between x and y.

Q5. **I** $3x + 7y = 18$
II $9x - 2y = 8$
(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or no relation can be established between x and y.

I. $3x^2 - 11x + 10 = 0$
II. $4y^2 + 13y - 17 = 0$

Q6.
(a) if x > y
(b) if x ≥ y
(c) if x<y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established.

I. $7y^2 + 32y + 25 = 0$
II. $2x^2 + 3x + 1 = 0$

Q7.
(a) if x > y
(b) if x ≥ y
(c) if x<y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established.

I. $4x + 7y = 10$
II. $3x + 5y = 12$

Q8.
(a) if x > y
(b) if x ≥ y
(c) if x<y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established.

I. $x^2 - 56x - 512 = 0$
II. $y^2 - 64y - 576 = 0$

Q9.
(a) if x > y
(b) if x ≥ y
(c) if x<y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established.

I. $5y^2 + 33y + 54 = 0$
II. $7x^2 - 23x + 18 = 0$

Q10.
(a) if x > y
(b) if x ≥ y
(c) if x<y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established.

Q11. **I.** $4x^2 + 20x + 21 = 0$
II. $2y^2 + 17y + 35 = 0$

(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established

Q12. **I.** $x^2 - 14x + 48 = 0$
II. $y^2 + 6 = 5y$

(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established

Q13. **I.** $38x^2 - 3x - 11 = 0$
II. $28y^2 + 32y + 9 = 0$

(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established

Q14. **I.** $9x^2 - 27x + 8 = 0$
II. $4y^2 - 13y + 3 = 0$

(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established

Q15. **I.** $x^2 - 28x + 196 = 0$
II. $y^2 = 196$

(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established

Solutions

S1. Ans.(b)
Sol.

I. $2x^2 - 25x + 72 = 0$
$2x^2 - 16x - 9x + 72 = 0$
$2x(x - 8) - 9(x - 8) = 0$
$x = 8, \frac{9}{2}$

II. $4y^2 - 12y - 27 = 0$
$4y^2 + 6y - 18y - 27 = 0$
$2y(2y + 3) - 9(2y + 3) = 0$
$y = \frac{-3}{2}, \frac{9}{2}$
$x \geq y$

S2. Ans.(e)
Sol.

I. $8x^2 - 26x + 21 = 0$
$8x^2 - 14x - 12x + 21 = 0$
$2x(4x - 7) - 3(4x - 7) = 0$
$x = \frac{7}{4}, \frac{3}{2}$
II. $10y^2 - 43y + 28 = 0$
$10y^2 - 35y - 8y + 28 = 0$
$5y(2y - 7) - 4(2y - 7) = 0$
$y = \frac{7}{2}, \frac{4}{5}$
No relation

S3. Ans.(b)
Sol.

I. $x^2 - 18x + 65 = 0$
$x^2 - 13x - 5x + 65 = 0$
$x = 13, 5$

II. $2y^2 - 17y + 35 = 0$
$2y^2 - 10y - 7y + 35 = 0$
$y = 5, \frac{7}{2}$
$x \geq y$

S4. Ans.(e)

Sol.

I. $7x^2 - 44x + 45 = 0$

$7x^2 - 9x - 35x + 45 = 0$

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

$x = 9/7, 5$

Now in II. equation

When $x = \frac{9}{7}$

$7 \times \frac{9}{7} - 8y = 19$

$9 - 8y = 19$

$y = -\frac{5}{4}$

When $x = 5$

$7 \times 5 - 8y = 19$

$8y = 16$

$y = 2$

No relation

S5. Ans.(c)

Sol.

(i) $3x + 7y = 18$

(ii) $9x - 2y = 8$

Solving (i) and (ii)

$x = 4/3, y = 2$

$y > x$

S6. Ans.(a)

Sol.

I. $3x^2 - 11x + 10 = 0$

$\Rightarrow 3x^2 - 6x - 5x + 10 = 0$

$\Rightarrow (x - 2)(3x - 5) = 0$

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

II. $4y^2 + 13y - 17 = 0$

$\Rightarrow 4y^2 + 17y - 4y - 17 = 0$

$\Rightarrow (4y + 17)(y - 1) = 0$

$\Rightarrow y = -\frac{17}{4}, 1$

$x > y$

S7. Ans.(b)

Sol.

I. $7y^2 + 32y + 25 = 0$
$\Rightarrow 7y^2 + 7y + 25y + 25 = 0$
$\Rightarrow (y + 1)(7y + 25) = 0$
$\Rightarrow y = -1, -\frac{25}{7}$
II. $2x^2 + 3x + 1 = 0$
$\Rightarrow 2x^2 + 2x + x + 1 = 0$
$\Rightarrow (x + 1)(2x + 1) = 0$
$\Rightarrow x = -1, -\frac{1}{2}$
$x \geq y$

S8. Ans.(a)
Sol.
I. $4x + 7y = 10$
II. $3x + 5y = 12$
Solving eq. I and eq. II, we get
$x = 34, \quad y = -18$
$x > y$

S9. Ans.(e)
Sol.
I. $x^2 - 56x - 512 = 0$
$\Rightarrow x^2 - 64x + 8x - 512 = 0$
$\Rightarrow (x - 64)(x + 8) = 0$
$\Rightarrow x = 64, -8$
II. $y^2 - 64y - 576 = 0$
$\Rightarrow y^2 - 72y + 8y - 576 = 0$
$\Rightarrow (y - 72)(y + 8) = 0$
$\Rightarrow y = 72, -8$
No relation

S10. Ans.(a)
Sol.
I. $5y^2 + 33y + 54 = 0$
$\Rightarrow 5y^2 + 15y + 18y + 54 = 0$
$\Rightarrow (y + 3)(5y + 18) = 0$
$\Rightarrow y = -3, -\frac{18}{5}$
II. $7x^2 - 23x + 18 = 0$
$\Rightarrow 7x^2 - 14x - 9x + 18 = 0$
$\Rightarrow (x - 2)(7x - 9) = 0$
$\Rightarrow x = 2, \frac{9}{7}$
$x > y$

S11. Ans.(b)

Sol.

I. $4x^2 + 20x + 21 = 0$

$\Rightarrow 4x^2 + 6x + 14x + 21 = 0$

$\Rightarrow (2x + 3)(2x + 7) = 0$

$\Rightarrow x = \frac{-3}{2}, \frac{-7}{2}$

II. $2y^2 + 17y + 35 = 0$

$\Rightarrow 2y^2 + 10y + 7y + 35 = 0$

$\Rightarrow (y + 5)(2y + 7) = 0$

$\Rightarrow y = -5, \frac{-7}{2}$

$\Rightarrow x \geq y$

S12. Ans.(a)

Sol.

I. $x^2 - 14x + 48 = 0$

$\Rightarrow x^2 - 8x - 6x + 48 = 0$

$\Rightarrow (x - 6)(x - 8) = 0$

$\Rightarrow x = 6, 8$

II. $y^2 - 5y + 6 = 0$

$\Rightarrow y^2 - 2y - 3y + 6 = 0$

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

$\Rightarrow y = 2, 3$

$\Rightarrow x > y$

S13. Ans.(b)

Sol.

I. $38x^2 - 3x - 11 = 0$

$\Rightarrow 38x^2 - 22x + 19x - 11 = 0$

$\Rightarrow (19x - 11)(2x + 1) = 0$

$\Rightarrow x = \frac{11}{19}, -\frac{1}{2}$

II. $28y^2 + 32y + 9 = 0$

$\Rightarrow 28y^2 + 14y + 18y + 9 = 0$

$\Rightarrow (2y + 1)(14y + 9) = 0$

$\Rightarrow y = \frac{-9}{14}, \frac{-1}{2}$

$\Rightarrow x \geq y$

S14. Ans.(e)

Sol.

I. $9x^2 - 27x + 8 = 0$
$\Rightarrow 9x^2 - 3x - 24x + 8 = 0$
$\Rightarrow (3x - 1)(3x - 8) = 0$
$\Rightarrow x = \frac{1}{3}, \frac{8}{3}$
II. $4y^2 - 13y + 3 = 0$
$\Rightarrow 4y^2 - 12y - y + 3 = 0$
$\Rightarrow (y - 3)(4y - 1) = 0$
$\Rightarrow y = \frac{1}{4}, 3$

$\Rightarrow$ No relation between x and y

S15. Ans.(b)
Sol.
I. $x^2 - 28x + 196 = 0$
$\Rightarrow (x - 14)(x - 14) = 0$
$\Rightarrow x = 14, 14,$
II. $y^2 = 196$
$\Rightarrow y = 14, -14$
$\Rightarrow x \geq y$