Quiz Date: 27th May 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. $2p^2 + 40 = 18p$
II. $q^2 = 13q - 42$

(a) If p is greater than q.
(b) If p is smaller than q.
(c) If p is equal to q or no relation between p and q.
(d) If p is either equal to or greater than q.
(e) If p is either equal to or smaller than q.

Q2.
I. $p^2 + 24 = 10p$
II. $2q^2 + 18 = 12q$

(a) If p is greater than q.
(b) If p is smaller than q.
(c) If p is equal to q or no relation between p and q.
(d) If p is either equal to or greater than q.
(e) If p is either equal to or smaller than q.

Q3.
I. $q^2 + q = 2$
II. $p^2 + 7p + 10 = 0$

(a) If p is greater than q.
(b) If p is smaller than q.
(c) If p is equal to q or no relation between p and q.
(d) If p is either equal to or greater than q.
(e) If p is either equal to or smaller than q.

Q4.
I. $p^2 + 16 = 8p$
II. $4q^2 + 64 = 32q$

(a) If p is greater than q.
(b) If p is smaller than q.
(c) If p is equal to q or no relation between p and q.
(d) If p is either equal to or greater than q.
(e) If p is either equal to or smaller than q.

Q5.
I. $2p^2 + 12p + 16 = 0$
II. $2q^2 + 14q + 24 = 0$

(a) If p is greater than q.
(b) If p is smaller than q.
(c) If p is equal to q or no relation between p and q.
(d) If p is either equal to or greater than q.
(e) If p is either equal to or smaller than q.

Q6. I. $3x^2 - 13x + 14 = 0$
II. $3y^2 - 17y + 22 = 0$

(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.

Q7. I. $2x^2 + 9x + 9 = 0$
II. $4y^2 + 9y + 5 = 0$

(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.

Q8. I. $x^2 - 7x + 12 = 0$
II. $2y^2 - 19y + 44 = 0$

(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.

Q9. I. $x^2 - 4x - 12 = 0$
II. $y^2 - 5y - 14 = 0$
(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.

Q10. I. $3x^2 - 22x + 40 = 0$
II. $5y^2 - 21y + 16 = 0$
(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.

Q11. 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.

Q12. 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.

Q13. 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.

Q14.

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

II $y^2 + 15y - 100 = 0$

(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.

Q15.

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.

Solutions

S1. Ans.(b)
Sol.

I. $p^2 - 9p + 20 = 0$
$\Rightarrow p^2 - 5p - 4p + 20 = 0$
$\Rightarrow (p - 5)(p - 4) = 0$
$\Rightarrow p = 5, 4$

II. $q^2 - 13q + 42 = 0$
$\Rightarrow q^2 - 6q - 7q + 42 = 0$
$\Rightarrow (q - 6)(q - 7) = 0$
$\Rightarrow q = 6, 7$
$q > p$

S2. Ans.(a)
Sol.

I. $p^2 - 10p + 24 = 0$
$\Rightarrow p^2 - 6p - 4p + 24 = 0$
$\Rightarrow (p - 6)(p - 4) = 0$
$\Rightarrow p = 6, 4$
II. $q^2 - 6q + 9 = 0$
$\Rightarrow (q - 3)^2 = 0$
$\Rightarrow q = 3, 3$
$p > q$

S3. Ans.(e)
Sol.
I. $q^2 + q - 2 = 0$
$\Rightarrow q^2 + 2q - q - 2 = 0$
$\Rightarrow (q + 2)(q - 1) = 0$
$\Rightarrow q = 1, -2$
II. $p^2 + 7p + 10 = 0$
$\Rightarrow p^2 + 5p + 2p + 10 = 0$
$\Rightarrow (p + 2)(p + 5) = 0$
$\Rightarrow p = -2, -5$
$q \geq p$

S4. Ans.(c)
Sol.
I. $p^2 - 8p + 16 = 0$
$\Rightarrow (p - 4)^2 = 0$
$\Rightarrow p = 4, 4$
II. $q^2 - 8q + 16 = 0$
$\Rightarrow (q - 4)^2 = 0$
$\Rightarrow q = 4, 4$
$q = p$

S5. Ans.(c)
Sol.
I. $2p^2 + 12p + 16 = 0$
$\Rightarrow p^2 + 6p + 8 = 0$
$\Rightarrow p = -4, -2$
II. $q^2 + 7q + 12 = 0$
$\Rightarrow q^2 + 4q + 3q + 12 = 0$
$\Rightarrow q = -4, -3$
No relation

S6. Ans.(e)
Sol.

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

S7. Ans.(c)
Sol.
I. $2x^2 + 9x + 9 = 0$
$\Rightarrow 2x^2 + 6x + 3x + 9 = 0$
$\Rightarrow (x + 3)(2x + 3) = 0$
$\Rightarrow x = -3, -\frac{3}{2}$
II. $4y^2 + 9y + 5 = 0$
$\Rightarrow 4y^2 + 4y + 5y + 5 = 0$
$\Rightarrow (y + 1)(4y + 5) = 0 \Rightarrow y = -1, -\frac{5}{4}$
$y > x$

S8. Ans.(d)
Sol.
I. $x^2 - 7x + 12 = 0$
$\Rightarrow (x - 3)(x - 4) = 0$
$\Rightarrow x = 3, 4$
II. $2y^2 - 19y + 44 = 0$
$\Rightarrow 2y^2 - 8y - 11y + 44 = 0$
$\Rightarrow (y - 4)(2y - 11) = 0$
$\Rightarrow y = 4, \frac{11}{2}$
$y \geq x$

S9. Ans.(e)
Sol.
I. $x^2 - 4x - 12 = 0$
$\Rightarrow x^2 - 6x + 2x - 12 = 0$
$\Rightarrow (x - 6)(x + 2) = 0$
$\Rightarrow x = 6, -2$
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

S10. Ans.(a)
Sol.
I. $3x^2 - 22x + 40 = 0$
$\Rightarrow 3x^2 - 12x - 10x + 40 = 0$
$\Rightarrow (x - 4)(3x - 10) = 0$
$\Rightarrow x = 4, \frac{10}{3}$
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

S11. 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. $4y^2 - 12y - 27 = 0$
$4y^2 + 6y - 18y - 27 = 0$
$2y(2y + 3) - 9(2y + 3) = 0$
$y = \frac{-3}{2}, \frac{9}{2}$
$x \geq y$

S12. 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

S13. Ans.(b)
Sol.
I. $x^2 - 18x + 65 = 0$
$x^2 - 13x - 5x + 65 = 0$
$x = 13, 5$

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

S14. Ans.(e)
Sol.
I. $7x^2 - 44x + 45 = 0$
$7x^2 - 9x - 35x + 45 = 0$
$x(7x - 9) - 5(7x - 9) = 0$
$x = 9/7, 5$
II. $y^2 + 15y - 100 = 0$
$y^2 + 20y - 5y - 100 = 0$
$y = 5, -20$
No relation

S15. Ans.(c)
Sol.

(i) $3x + 7y = 18$
(ii) $9x - 2y = 8$
Solving (i) and (ii)
$x = 4/3, y = 2$
$y > x$