Quiz Date: 7th May 2020

Directions (1-15): In each of the following questions two equations are given. You have to solve the equations and

Q1.
I. $3x^2 + 10x + 8 = 0$
II. $3y^2 + 7y + 4 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q2.
I. $2x^2 + 21x + 10 = 0$
II. $3y^2 + 13y + 14 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q3.
I. $x^2 + x - 12 = 0$
II. $y^2 + 2y - 8 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q4.
I. $4x^2 - 13x + 9 = 0$
II. $3y^2 - 14y + 16 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q5.
I. $8x^2 + 18x + 9 = 0$
II. $4y^2 + 19y + 21 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y

(e) if x > y

Q6. I. $3x^2 + 16x + 21 = 0$
II. $6y^2 + 17y + 12 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q7. I. $16x^2 + 20x + 6 = 0$
II. $10y^2 + 38y + 24 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q8. I. $8x^2 + 6x = 5$
II. $12y^2 - 22y + 8 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q9. I. $17x^2 + 48x = 9$
II. $13y^2 = 32y - 12$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q10.
I. $8x^2 + 26x + 15 = 0$
II. $4y^2 + 24y + 35 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q11.
I. $6x^2 + 19x + 15 = 0$
II. $24y^2 + 11y + 1 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q12.
I. $2x^2 + 11x + 15 = 0$
II. $4y^2 + 22y + 24 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q13.
I. $2x^2 + 9x + 9 = 0$
II. $2y^2 + 17y + 36 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q14.
I. $5x^2 + 29x + 20 = 0$
II. $25y^2 + 25y + 6 = 0$
(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Q15.
I. $3x^2 - 16x + 21 = 0$
II. $3y^2 - 28y + 65 = 0$

(a) if x < y
(b) if x ≤ y
(c) relationship between x and y cannot be determined
(d) if x ≥ y
(e) if x > y

Solutions

S1. Ans.(b)
Sol.

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

II. $3y^2 + 7y + 4 = 0$
$\Rightarrow 3y^2 + 3y + 4y + 4 = 0$
$\Rightarrow (y + 1)(3y + 4) = 0$
$\Rightarrow y = -1, -4/3$

$y \geq x$

S2. Ans.(c)
Sol.

I. $2x^2 + 21x + 10 = 0$
$\Rightarrow 2x^2 + 20 + x + 10 = 0$
$\Rightarrow (x + 10)(2x + 1) = 0$
$\Rightarrow x = -10, -1/2$

II. $3y^2 + 13y + 14 = 0$
$\Rightarrow 3y^2 + 6y + 7y + 14 = 0$
$\Rightarrow (y + 2)(3y + 7) = 0$
$\Rightarrow y = -2, -7/3$

No relation

S3. Ans.(c)
Sol.

I. $x^2 + x - 12 = 0$
$\Rightarrow x^2 + 4x - 3x - 12 = 0$
$\Rightarrow (x + 4)(x - 3) = 0$
$\Rightarrow x = 3, -4$

II. $y^2 + 2y - 8 = 0$
$\Rightarrow y^2 + 4y - 2y - 8 = 0$
$\Rightarrow (y + 4)(y - 2) = 0$
$\Rightarrow y = -4, 2$
No relation

S4. Ans.(c)
Sol.
I. $4x^2 - 13x + 9 = 0$
$\Rightarrow 4x^2 - 4x - 9x + 9 = 0$
$\Rightarrow (x - 1)(4x - 9) = 0$
$\Rightarrow x = 1, 9/4$

II. $3y^2 - 14y + 16 = 0$
$\Rightarrow 3y^2 - 6y - 8y + 16 = 0$
$\Rightarrow (y - 2)(3y - 8) = 0$
$\Rightarrow y = 2, 8/3$
No relation

S5. Ans.(e)
Sol.
I. $8x^2 + 18x + 9 = 0$
$\Rightarrow 8x^2 + 12x + 6x + 9 = 0$
$\Rightarrow (2x + 3)(4x + 3) = 0$
$\Rightarrow x = -3/2, -3/4$
II. $4y^2 + 19y + 21 = 0$
$\Rightarrow 4y^2 + 12y + 7y + 21 = 0$
$\Rightarrow (y + 3)(4y + 7) = 0$
$\Rightarrow x = -3, -7/4$
Sol. $x > y$

S6. Ans.(a)
I. $3x^2 + 16x + 21 = 0$
$\Rightarrow 3x^2 + 9x + 7x + 21 = 0$
$\Rightarrow (x + 3)(3x + 7) = 0$
$\Rightarrow x = -3, -7/3$
II. $6y^2 + 17y + 12 = 0$
$\Rightarrow 6y^2 + 9y + 8y + 12 = 0$
$\Rightarrow 3y(2y + 3) + 4(2y + 3) = 0$
$\Rightarrow y = -3/2, -4/3$
$y > x$

S7. Ans.(e)
Sol.

I. $16x^2 + 20x + 6 = 0$
$\Rightarrow 8x^2 + 10x + 3 = 0$
$\Rightarrow 8x^2 + 4x + 6x + 3 = 0$
$\Rightarrow (2x + 1)(4x + 3) = 0$
$\Rightarrow x = -1/2, -3/4$

II. $10y^2 + 38y + 24 = 0$
$\Rightarrow 5y^2 + 19y + 12 = 0$
$\Rightarrow 5y^2 + 15y + 4y + 12 = 0$
$\Rightarrow (y + 3)(5y + 4) = 0$
$y = -3, -4/5$
$x > y$

S8. Ans.(b)
Sol.

I. $8x^2 + 6x - 5 = 0$
$\Rightarrow 8x^2 + 10x - 4x - 5 = 0$
$\Rightarrow (4x + 5)(2x - 1) = 0$
$\Rightarrow x = ½, -5/4$

II. $12y^2 - 22y + 8 = 0$
$\Rightarrow 6y^2 - 11y + 4 = 0$
$\Rightarrow 6y^2 - 3y - 8y + 4 = 0$
$\Rightarrow (2y - 1)(3y - 4) = 0$
$\Rightarrow y = 1/2, 4/3$
$y \geq x$

S9. Ans.(a)
Sol.

I. $17x^2 + 48x - 9 = 0$
$\Rightarrow 17x^2 + 51x - 3x - 9 = 0$
$\Rightarrow (x + 3)(17x - 3) = 0$
$\Rightarrow x = 3/17, -3$

II. $13y^2 - 32y + 12 = 0$
$\Rightarrow 13y^2 - 26y - 6y + 12 = 0$
$\Rightarrow (y - 2)(13y - 6) = 0$
$\Rightarrow y = 2, 6/13$
$y > x$

S10. Ans.(d)
Sol.

I. $8x^2 + 26x + 15 = 0$
$\Rightarrow 8x^2 + 20x + 6x + 15 = 0$
$\Rightarrow 4x(2x + 5) + 3(2x + 5) = 0$
$\Rightarrow (2x + 5)(4x + 3) = 0$
$\Rightarrow x = -5/2, -3/4$

II. $4y^2 + 24y + 35 = 0$
$\Rightarrow 4y^2 + 10y + 14y + 35 = 0$
$\Rightarrow 2y(2y + 5) + 7(2y + 5) = 0$
$\Rightarrow (2y + 5)(2y + 7) = 0$
$\Rightarrow y = -5/2, -7/2$

$x \geq y$

S11. Ans.(a)
Sol.

I. $6x^2 + 19x + 15 = 0$
$\Rightarrow 6x^2 + 9x + 10x + 15 = 0$
$\Rightarrow (2x + 3)(3x + 5) = 0$
$\Rightarrow x = -3/2, -5/3$

II. $24y^2 + 11y + 1 = 0$
$\Rightarrow 24y^2 + 8y + 3y + 1 = 0$
$\Rightarrow (3y + 1)(8y + 1) = 0$
$\Rightarrow y = -1/3, -1/8$

$y > x$

S12. Ans.(c)
Sol.

I. $2x^2 + 11x + 15 = 0$
$\Rightarrow 2x^2 + 6x + 5x + 15 = 0$
$\Rightarrow (x + 3)(2x + 5) = 0$
$\Rightarrow x = -3, -5/2$

II. $4y^2 + 22y + 24 = 0$
$\Rightarrow 2y^2 + 11y + 12 = 0$
$\Rightarrow 2y^2 + 8y + 3y + 12 = 0$
$\Rightarrow (y + 4)(2y + 3) = 0$
$\Rightarrow y = -4, -3/2$
No relation

S13. Ans.(e)
Sol.
I. $2x^2 + 9x + 9 = 0$
$\Rightarrow 2x^2 + 6x + 3x + 9 = 0$
$\Rightarrow (x + 3)(2x + 3) = 0$
$\Rightarrow x = -3, -3/2$

II. $2y^2 + 17y + 36 = 0$
$\Rightarrow 2y^2 + 8y + 9y + 36 = 0$
$\Rightarrow (y + 4)(2y + 9) = 0$
$y = -4, -9/2$
$x > y$

S14. Ans.(a)
Sol.
I. $5x^2 + 29 + 20 = 0$
$\Rightarrow 5x^2 + 25x + 4x + 20 = 0$
$\Rightarrow (x + 5)(5x + 4) = 0$
$\Rightarrow x = -5, -4/5$
II. $25y^2 + 25y + 6 = 0$
$\Rightarrow 25y^2 + 15y + 10y + 6 = 0$
$\Rightarrow (5y + 3)(5y + 2) = 0$
$\Rightarrow y = -3/5, -2/5$
$y > x$

S15. Ans.(a)
Sol.

I. $3x^2 - 16x + 21 = 0$
$\Rightarrow 3x^2 - 9x - 7x + 21 = 0$
$\Rightarrow (x - 3)(3x - 7) = 0$
$\Rightarrow x = 3, 7/3$

II. $3y^2 - 28y + 65 = 0$
$\Rightarrow 3y^2 - 15y - 13y + 65 = 0$
$\Rightarrow (y - 5)(3y - 13) = 0$
$\Rightarrow y = 5, 13/3$

$y > x$