Quiz Date: 20ᵗʰ May 2020

Directions (1-5): In each question two equations numbered (i) and (ii) are given. You have to solve both the equations and give answer
(a) If $x < y$
(b) If $x > y$
(c) If $x \geq y$
(d) If $x \leq y$
(e) If $x = y$ or no relation can be established

Q1.   (i) $x^2 + 16x - 192 = 0$
(ii) $y^2 - 20y + 96 = 0$

Q2.   (i) $8x + 3y = 7$
(ii) $4x + 9y = 8.5$

Q3.   (i) $6x^2 - 17x + 12 = 0$
(ii) $12y^2 - 17y + 6 = 0$

Q4.   (i) $5x^2 + 59x + 44 = 0$
(ii) $2y^2 + 13y + 15 = 0$

Q5.   (i) $x^2 - 36x + 315 = 0$
(ii) $y^2 - 23y + 120 = 0$

Directions (6-10): What should come in place of the question mark (?) in the following questions ?
Q6. $302 \times 15 - 12 \times 260 + \sqrt{?} = (11)^3 + (9)^2$
(a) 1
(b) 9
(c) 4
(d) 16
(e) 25

Q7. 35% of 700 + 25% of 256 = ?
(a) 229
(b) 320
(c) 309
(d) 302
(e) 216

Q8. $2\frac{1}{3} + 5\frac{2}{5} + 4\frac{1}{3} =?$
(a) $\frac{181}{15}$
(b) $\frac{172}{15}$

(c) $\frac{214}{15}$

(d) $\frac{203}{15}$

(e) $\frac{191}{3}$

Q9. $1024 \div 128 + 34\%$ of $350 = (?)^2 + 90 \div 15$
(a) 10
(b) 12
(c) 8
(d) 5
(e) 11

Q10. $5\frac{2}{13} \times 338 + ? = 7^3 \times 3^2$
(a) 1331
(b) 1345
(c) 1290
(d) 1156
(e) 1225

Direction (11-15): Two equations (I) and (II) are given in each question. On the basis of these equations you have to decide the relation between 'x' and 'y' and give answer.
(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.** $x^2 - 8\sqrt{3}x + 45 = 0$
   II. $y^2 - \sqrt{2}y - 24 = 0$

Q12. **I.** $12x^2 - 17x + 6 = 0$
   II. $20y^2 - 31y + 12 = 0$

Q13. **I.** $35x^2 - 53x + 20 = 0$
   II. $56y^2 - 97y + 42 = 0$

Q14. **I.** $x^2 - 5x - 14 = 0$
   II. $y^2 + 7y + 10 = 0$

Q15. **I.** $14x^2 + 11x - 15 = 0$
II. $20y^2 - 31y + 12 = 0$

Solutions

S1. Ans.(d)
Sol.
(i) $x^2 + 16x - 192 = 0$
$x^2 + 24x - 8x - 192 = 0$
$x(x + 24) - 8(x + 24) = 0$
$(x + 24)(x - 8) = 0$
x = – 24, 8

(ii) $y^2 - 20y + 96 = 0$
$y^2 - 8y - 12y + 96 = 0$
$y(y - 8) - 12(y - 8) = 0$
$(y - 8)(y - 12) = 0$
y = 8, 12
∴ y ≥ x

S2. Ans.(a)
Sol.
(i) 8x + 3y = 7
(ii) 4x + 9y = 8.5
Solving (i) and (ii)
x = $\frac{5}{8}$ & y = $\frac{2}{3}$
∴ y > x

S3. Ans.(b)
Sol.
(i) $6x^2 - 17x + 12 = 0$
$6x^2 - 8x - 9x + 12 = 0$
$2x(3x - 4) - 3(3x - 4) = 0$
$(2x - 3)(3x - 4) = 0$
x = $\frac{3}{2}, \frac{4}{3}$
(ii) $12y^2 - 17y + 6 = 0$
$12y^2 - 8y - 9y + 6 = 0$
$4y(3y - 2) - 3(3y - 2) = 0$
$(4y - 3)(3y - 2) = 0$
$y = \frac{2}{3}, \frac{3}{4}$

∴ x > y

S4. Ans.(e)
Sol.
(i) $5x^2 + 59x + 44 = 0$
$5x^2 + 4x + 55x + 44 = 0$
$x(5x + 4) + 11(5x + 4) = 0$
$(x + 11)(5x + 4) = 0$
$x = \frac{-4}{5}, -11$

(ii) $2y^2 + 13y + 15 = 0$
$2y^2 + 3y + 10y + 15 = 0$
$y(2y + 3) + 5(2y + 3) = 0$
$(2y + 3)(y + 5) = 0$
$y = \frac{-3}{2}, -5$
∴ No relation

S5. Ans.(c)
Sol.
(i) $x^2 - 36x + 315 = 0$
$x^2 - 15x - 21x + 315 = 0$
$x(x - 15) - 21(x - 15) = 0$
$(x - 21)(x - 15) = 0$
x = 15, 21
(ii) $y^2 - 23y + 120 = 0$
$y^2 - 8y - 15y + 120 = 0$
$y(y - 8) - 15(y - 8) = 0$
$(y - 8)(y - 15) = 0$
y = 8, 15
∴ x ≥ y

S6. Ans.(c)
Sol.
$302 \times 15 - 12 \times 260 + \sqrt{?} = (11)^3 + (9)^2$
$4530 - 3120 + \sqrt{?} = 1331 + 81$

$\sqrt{?} = 1331 - 4530 + 3120 + 81$
$? = 4$

S7. Ans.(c)
Sol.
$\dfrac{35}{100} \times 700 + \dfrac{25}{100} \times 256 = ?$
$? = 64 + 245$
$? = 309$

S8. Ans.(a)
Sol.
$\dfrac{7}{3} + \dfrac{27}{5} + \dfrac{13}{3} = ?$
$? = \dfrac{35 + 81 + 65}{15} = \dfrac{181}{15}$

S9. Ans.(e)
Sol.
$\dfrac{1024}{128} + \dfrac{34}{100} \times 350 = ?^2 + 90 \div 15$
$?^2 = 8 + 17 \times 7 - 6$
$? = 11$

S10. Ans.(b)
Sol.
$\dfrac{67}{13} \times 338 + ? = 7^3 \times 3^2$
$? = 343 \times 9 - 67 \times 26$
$? = 3087 - 1742$
$? = 1345$

S11. Ans.(e)
Sol.
$x^2 - 5\sqrt{3}x - 3\sqrt{3}x + 45 = 0$
$x(x - 5\sqrt{3}) - 3\sqrt{3}(x - 5\sqrt{3}) = 0$
$x = 3\sqrt{3}, 5\sqrt{3}$
$y^2 - 4\sqrt{2}y + 3\sqrt{2}y - 24 = 0$
$y(y - 4\sqrt{2}) + 3\sqrt{2}(y - 4\sqrt{2}) = 0$
$y = 4\sqrt{2}, -3\sqrt{2}$
No relation can be established.

S12. Ans.(d)
Sol.
$12x^2 - 8x - 9x + 6 = 0$

$4x(3x - 2) - 3(3x - 2) = 0$

$x = \frac{2}{3}, \frac{3}{4}$

$20y^2 - 15y - 16y + 12 = 0$

$5y(4y - 3) - 4(4y - 3) = 0$

$y = \frac{4}{5}, \frac{3}{4}$

$x \le y$

S13. Ans. (c)

Sol. $35x^2 - 25x - 28x + 20 = 0$

$5x(7x - 5) - 4(7x - 5) = 0$

$x = \frac{4}{5}, \frac{5}{7}$

$56y^2 - 49y - 48y + 42 = 0$

$7y(8y - 7) - 6(8y - 7) = 0$

$y = \frac{6}{7}, \frac{7}{8}$

$x < y$

S14. Ans. (b)

Sol. $x^2 - 7x + 2x - 14 = 0$

$x(x - 7) + 2(x - 7) = 0$

$x = 7, -2$

$y^2 + 5y + 2y + 10 = 0$

$y = -2, -5$

$x \ge y$

S15. Ans.(c)

Sol.

I. $14x^2 + 11x - 15 = 0$	**II.** $20y^2 - 31y + 12 = 0$
$14x^2 + 21x - 10x - 15 = 0$	$20y^2 - 15y - 16y + 12 = 0$
$7x(2x + 3) - 5(2x + 3) = 0$	$5y(4y - 3) - 4(4y - 3) = 0$
$(7x - 5)(2x + 3)$	$(5y - 4)(4y - 3)$
$x = \frac{-3}{2}, \frac{5}{7}$	$y = \frac{4}{5}, \frac{3}{4}$

$y > x$

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