Direction (1-5):- What should come in place of question mark (?) in the following questions?

Q1. 36, 49, 75, 114, 166, ?
(a) 225
(b) 218
(c) 231
(d) 244
(e) 235

Q2. 1, 3, 9, 21, 41, ?
(a) 61
(b) 71
(c) 83
(d) 78
(e) 68

Q3. 114, 110, 101, ?, 60, 24
(a) 91
(b) 84
(c) 87
(d) 85
(e) 83

Q4. 343, ?, 125, 16, 27, 4
(a) 216
(b) 36
(c) 49
(d) 64
(e) 81

Q5. ?, 36, 37, 76, 307, 2460
(a) 35.5
(b) 48
(c) 35
(d) 64
(e) 72

Directions (6-10): What approximate value will come in place of (x) in the following questions?

Q6. $\sqrt{1023.99} + \sqrt{63.89} + \sqrt{960.89} + x = 24.99\%$ of 699.99
(a) 104
(b) 111
(c) 96

(d) 90
(e) 120

Q7. $(26.99)^2 + (15.91)^2 + \sqrt{x} = 20.11\%$ of 4999.99
(a) 196
(b) 175
(c) 200
(d) 210
(e) 225

Q8. 74.99% of 255.89 + $\frac{39.94}{\sqrt{x}} = 47.99\%$ of 649.81
(a) $\frac{1}{16}$
(b) $\frac{1}{9}$
(c) $\frac{1}{25}$
(d) $\frac{1}{4}$
(e) $\frac{1}{36}$

Q9. $\frac{2.99}{3.99} \times \sqrt[3]{511.99} + 123.9\%$ of 650.11 = x
(a) 850
(b) 792
(c) 812
(d) 841
(e) 750

Q10. $\frac{1699}{85\%\ of\ 125} - 249.9 \div \left(\frac{5}{8} \times 100\right) \times \sqrt{x} = 0$
(a) 4
(b) 9
(c) 25
(d) 8
(e) 16
L1Difficulty 2
QTags Approximation
QCreator Amit Kumar Singh

Direction (11-15): In the following questions, two equations (I) and (II) are given. You have to solve both the equations and mark the appropriate answer.

Q11. I. $3x^2 + 5x + 2 = 0$
II. $6y^2 - y = 2$
(a) $x < y$
(b) $x > y$
(c) $x \leq y$

(d) $x \geq y$
(e) $x = y$ or no relation.

Q12. I. $2x - \frac{3}{x} = 5$
II. $y^2 - 8y + 15 = 0$

(a) $x < y$
(b) $x > y$
(c) $x \leq y$
(d) $x \geq y$
(e) $x = y$ or no relation.

Q13. I. $\sqrt{2x + 9} + x = 13$
II. $y^2 = 16$
(a) $x < y$
(b) $x > y$
(c) $x \leq y$
(d) $x \geq y$
(e) $x = y$ or no relation.

Q14. I. $\sqrt{7}x^2 - 6x - 13\sqrt{7} = 0$
II. $y^2 - 9y - 36 = 0$
(a) $x < y$
(b) $x > y$
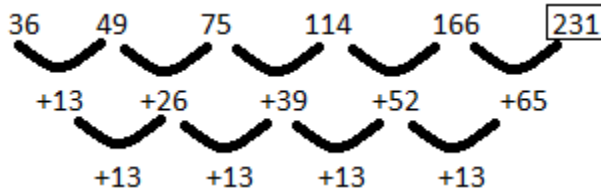(c) $x \leq y$
(d) $x \geq y$
(e) $x = y$ or no relation.

Q15. I. $x^2 - 11x + 30 = 0$
II. $y^2 - 7y + 10 = 0$
(a) $x < y$
(b) $x > y$
(c) $x \leq y$
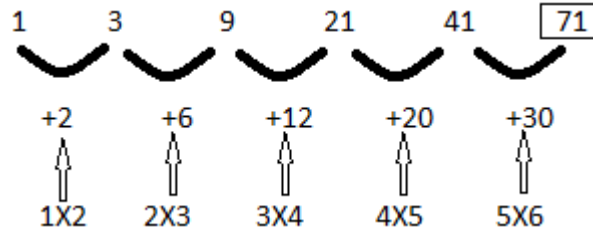(d) $x \geq y$
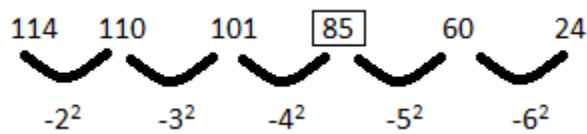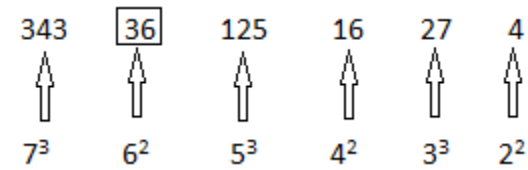(e) $x = y$ or no relation.

Solutions

S1. Ans(c)
Sol.

36   49   75   114   166   231

+13   +26   +39   +52   +65

+13   +13   +13   +13

S2. Ans(b)
Sol.

1   3   9   21   41   71

+2   +6   +12   +20   +30

1×2 2×3 3×4 4×5 5×6

S3. Ans(d)
Sol.

114   110   101   85   60   24

-2^2 -3^2 -4^2 -5^2 -6^2

S4. Ans(b)
Sol.

343   36   125   16   27   4

7^3 6^2 5^3 4^2 3^3 2^2

S5. Ans(e)
Sol.

72   36   37   76   307   2460

$\times 0.5 + 0$ $\times 1 + 1$ $\times 2 + 2$ $\times 4 + 3$ $\times 8 + 4$
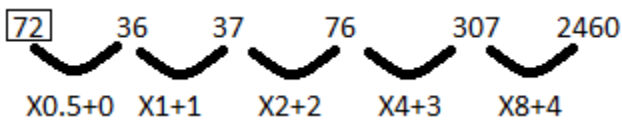
S6. Ans.(a)
Sol.

$\approx 32 + 8 + 31 + x = \dfrac{25}{100} \times 700$

$\approx 71 + x = 25 \times 7$

$\approx x = 104$

S7. Ans.(e)
Sol.

$$\approx 729 + 256 + \sqrt{x} = \frac{20}{100} \times 5000$$

$$\approx \sqrt{x} = 15$$
$$\approx x = 225$$

S8. Ans.(b)
Sol.

$$\approx \frac{75}{100} \times 256 + \frac{40}{\sqrt{x}} = \frac{48}{100} \times 650$$

$$\approx 192 + \frac{40}{\sqrt{x}} = 312$$

$$\approx \frac{40}{\sqrt{x}} = 120$$

$$\approx x = \left(\frac{40}{120}\right)^2$$

$$\approx x = \frac{1}{9}$$

S9. Ans.(c)
Sol. $\approx \frac{3}{4} \times 8 + \frac{124}{100} \times 650 = x$

$$\approx 6 + 806 = x$$
$$\approx x = 812$$

S10. Ans.(e)
Sol. $\approx \frac{1700}{\frac{85}{100} \times 125} - \frac{250}{\frac{5}{8} \times 100} \times \sqrt{x} = 0$

$$\approx 16 - 4\sqrt{x}$$
$$\approx \sqrt{x} = 4$$
$$\approx x = 16$$

S11. Ans(a)
Sol.
I. $3x^2 + 5x + 2 = 0$
$3x^2 + 3x + 2x + 2 = 0$
$3x (x + 1) + 2 (x + 1) = 0$
$(x + 1) (3x + 2)$
$\Rightarrow x = -1, -2/3$

II. $6y^2 - y - 2 = 0$
$6y^2 + 3y - 4y - 2 = 0$
$3y(2y + 1) - 2 (2y + 1) = 0$
$(3y - 2) (2y + 1)$
$\Rightarrow y = 2/3, \frac{-1}{2}$
So, y>x

S12. Ans(c)

Sol. I. $2x - \frac{3}{x} = 5$

$\Rightarrow 2x^2 - 3 = 5x$

$\Rightarrow 2x^2 - 5x - 3 = 0$

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

$\Rightarrow 2x(x-3) + 1(x-3) = 0$

$\Rightarrow (x-3)(2x+1) = 0$

$\Rightarrow x = 3, -1/2$

II. $y^2 - 8y + 15 = 0$

$\Rightarrow y^2 - 3y - 5y + 15 = 0$

$\Rightarrow y(y-3) - 5(y-3) = 0$

$\Rightarrow (y-3)(y-5) = 0$

$\Rightarrow y = 3, 5$

So, $y \geq x$

S13. Ans(b)

Sol. I. $\sqrt{2x+9} + x = 13$

$\Rightarrow \sqrt{2x+9} = 13 - x$

$\Rightarrow 2x + 9 = (13-x)^2$

$\Rightarrow 2x + 9 = 169 + x^2 - 26x$

$\Rightarrow x^2 - 28x + 160 = 0$

$\Rightarrow x^2 - 20x - 8x + 160 = 0$

$\Rightarrow x(x-20) - 8(x-20) = 0$

$\Rightarrow (x-20(x-8) = 0$

$\Rightarrow x = 8, 20$

II. $y^2 = 16$

$y = \pm 4$

so, x>y.

S14. Ans(e)

Sol. I. $\sqrt{7}x^2 - 6x - 13\sqrt{7} = 0$

$\Rightarrow \sqrt{7}x^2 - 13x + 7x - 13\sqrt{7} = 0$

$\Rightarrow \sqrt{7}x^2 + 7x - 13x - 13\sqrt{7} = 0$

$\Rightarrow \sqrt{7}x(x + \sqrt{7}) - 13(x + \sqrt{7}) = 0$

$= (\sqrt{7}x - 13)(x + \sqrt{7}) = 0$

$x = \frac{13}{\sqrt{7}}, -\sqrt{7}.$

II. $y^2 - 9y - 36 = 0$

$y^2 - 12y + 3y - 36 = 0$

$y(y-12) + 3(y-12) = 0$

$(y-12)(y+3) = 0$

$y = 12, -3$

So, no relation

S15. Ans(d)
Sol. I.$x^2 - 11x + 30 = 0$
$x^2 - 5x - 6x + 30 = 0$
$x(x - 5) - 6 (x - 5) = 0$
$(x - 5) (x - 6) = 0$
$\Rightarrow x = 5, 6$

II.$y^2 - 7y + 10 = 0$
$\Rightarrow y^2 - 2y - 5y + 10 = 0$
$\Rightarrow y(y - 2) - 5 (y - 2) = 0$
$(y - 5) (y - 2) = 0$
$\Rightarrow y = 2, 5.$
So, $x \geq y$.