

GSCE

Solution of Simplification(Answer with explanation)

1(2)

$$(16)^{\frac{1}{2}} + (36)^2 = (?)^2 + 459$$

$$\text{or, } (?)^2 = 1296 + 4 - 459 = 841$$

$$\text{or, } ? = \pm 29$$

2(4)

$$? = \frac{44}{10} \times \frac{5}{16} \times \frac{30}{100} \times 216 = 89.1$$

3(5)

$$(1.1)^2 - (4.24 \times 0.04) = ?$$

$$? = 1.0404$$

4(5)

$$\frac{(0.538 + 0.462) \times (0.538 - 0.462)}{0.076} = ?$$

$$\frac{1 \times 0.076}{0.076} = ?$$

$$? = 1$$

5(10)

$$?^3 = \frac{729 \times 6}{9} + 343 + 72 + 431 = 1331$$

$$\text{or, } ? = 11$$

6(5) "18"

7.(2). "47"

8(5) 715

9.(1) "135"

10(2) "1521"

11 (2) "2905.5"

12 (5). "242"

Explanation : The difference is number between $1^3, 2^3, 3^3, 4^3, 5^3$

13. (4). "1437"

14(4). " 200%"

15(2) 232

16(1)253

17(3)6

18(2)1.25

19(4) 0.63

20(3) 0.347

21C

$$\text{Apply } \frac{a^3 + b^3 + c^3 - 3abc}{a^2 + b^2 + c^2 - ab - bc - ca} = a + b + c$$

Hence the answer is $1.5 + 4.7 + 3.8 = 10$.

22A

Given $\frac{37^3 + 35^3 + 28^3 - 3 \times 37 \times 35 \times 28}{37^2 + 35^2 + 28^2 - 37 \times 35 - 35 \times 28 - 37 \times 28}$

It is in the form of

$$\frac{a^3 + b^3 + c^3 - 3abc}{a^2 + b^2 + c^2 - ab - bc - ca} = a + b + c$$

Here $a = 37$, $b = 35$ & $c = 28$

$$\Rightarrow a + b + c = 37 + 35 + 28 = 100$$

23A

$$\begin{aligned} 3 * 5 + 5 * 3 &= (2 * 3 - 3 * 5 + 3 * 5) + (2 * 5 - 3 * 3 + 5 * 3) \\ &= (6 + 10 - 9 + 15) = 22. \end{aligned}$$

24C

$$\begin{aligned} (a + b + c)^2 &= a^2 + b^2 + c^2 + 2(ab + bc + ca) \\ 2(ab + bc + ca) &= (a + b + c)^2 - (a^2 + b^2 + c^2) \\ &= 169 - 69 = 100 \\ &= (ab + bc + ca) = 50 \end{aligned}$$

25A

Given fraction is $5(2/7) - 3(1/14) - 2(1/14) - 1(1/7) = ? + 3(1/17)$

It can be written as

$$(5 - 3 - 2 - 1) + (2/7 - 1/14 - 1/14 - 1/7) = ? + 3(1/17)$$

$$-1 + 0 - 3(1/17) = ?$$

$$\Rightarrow ? = -4(1/17)$$

26D

27D

28C

29C

$$48\sqrt{?} + 32\sqrt{?} = 320$$

$$\Rightarrow 6\sqrt{?} + 4\sqrt{?} = 40$$

Now **squaring on both sides**

$$\Rightarrow 36x? + 16x? + 48x? = 1600$$

$$\Rightarrow 100x? = 1600$$

$$\Rightarrow ? = 16$$

30A

$$3x + 7 = 7x + 5 \Rightarrow 7x - 3x = 2 \Rightarrow 4x = 2 \Rightarrow x = \frac{1}{2}$$

$$\text{Now, } 3x + 7 = x^2 + p = \frac{3}{2} + 7 = \frac{1}{4} + p \Rightarrow p = \frac{17}{2}$$

31B

$$\frac{[(K-L)^2 - (K+L)^2]}{4K} = \frac{a}{b}$$
$$\frac{(K^2 + L^2 - 2KL) - (K^2 + L^2 + 2KL)}{4K} = \frac{a}{b}$$

$$\Rightarrow -4KL/4K = a/b$$

$$\Rightarrow L = -a/b$$

$$\Rightarrow bL = -a$$

32B

$$38 \times 7500/100 + p \times 375/100 = 50 \times 6000/100$$

$$\Rightarrow 38 \times 75 + 3.75p = 3000$$

$$\Rightarrow 3.75p = 3000 - 2850$$

$$\Rightarrow p = 150/3.75$$

$$\Rightarrow p = ? = 40$$

33D

$$\begin{aligned}17\frac{4}{7} + 13\frac{2}{12} - ? &= 11\frac{2}{3} \\ \frac{123}{7} + \frac{158}{12} - ? &= \frac{35}{3} \\ \Rightarrow ? &= \frac{123}{7} + \frac{158}{12} - \frac{35}{3} \\ \Rightarrow ? &= \frac{1476 + 1106 - 980}{84} \\ \Rightarrow ? &= \mathbf{19.07}\end{aligned}$$

34C

$$\begin{aligned}\text{Given that } 3^{x-y} &= 27, 3^{x+y} = 243 \\ \Rightarrow 3^{x-y} &= 3^3, 3^{x+y} = 3^5 \\ \Rightarrow x-y &= 3, x+y = 5 \\ \Rightarrow x &= 4\end{aligned}$$

35A

$$\begin{aligned}\frac{1}{3} \times ? + \frac{4}{7} \times \frac{11}{4} \times 539 &= \frac{31}{100} \times 2000 \\ ? &= 378 \times 3 \\ ? &= \mathbf{1134}\end{aligned}$$

36C

$$\begin{aligned}(?)^2 &= (2 \times 7\sqrt{8} - 21 + 8 + 49 - 14\sqrt{8}) \\ &= 57 - 21 \\ &= 36 \\ \Rightarrow ? &= \mathbf{\pm 6}\end{aligned}$$

37A

$$\begin{aligned}43 \times 616.6/100 + 37 \times 217/100 \\ \Rightarrow 265.138 + 80.29 \\ \Rightarrow \mathbf{345.428}\end{aligned}$$

38A

Given **39.96% of 649.85 ÷ 13.07 = 45.14 - ?** can be written as
 40% of 650 ÷ 13 = 45 - ?

$$\frac{40 \times 650}{100} \div 13 = 45 - ?$$

$$? = 45 - 20$$

$$? = \mathbf{25.}$$

39B

$$\frac{a}{b} \times \frac{b}{c} = \frac{4}{5} \times \frac{15}{16} = \frac{3}{4} = \frac{16-9}{16+9}$$

$$= \frac{7}{25}$$

40A

$$\frac{276+35}{961+50} = \frac{1011}{1011} = \mathbf{1}$$

41A

$$\frac{21}{5} \times \frac{10}{3} + ? = \mathbf{24}$$

$$\Rightarrow 14 + ? = 24$$

$$\Rightarrow ? = 24 - 14$$

$$\Rightarrow ? = \mathbf{10}$$

42A

$$\text{Given exp} = \left[\frac{13}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \left(\frac{5}{2} - \frac{3-2}{12} \right) \right\} \right] = \left[\frac{13}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \left(\frac{5}{2} - \frac{1}{12} \right) \right\} \right]$$

$$= \left[\frac{13}{4} \div \left\{ \frac{5}{4} - \frac{1}{2} \left(\frac{30-1}{12} \right) \right\} \right] = \left[\frac{13}{4} \div \left\{ \frac{5}{4} - \frac{29}{24} \right\} \right]$$

$$= \left[\frac{13}{4} \div \frac{30-29}{24} \right] = 78$$

43B

$$\frac{1}{7} \times \frac{1}{2} \times \frac{1}{9.5} \times \frac{1}{2} \times 2660 = \frac{2660}{266} = \mathbf{10}$$

44D

$$\begin{aligned}x^z &= y^2 \Leftrightarrow 10^{(0.48z)} = 10^{(2 \times 0.70)} = 10^{1.40} \\ \Rightarrow 0.48z &= 1.40 \\ \Rightarrow z &= 140/18 = 35/12 = 2.9 \text{ (approx.)}\end{aligned}$$

45C

$$\begin{aligned}40\% &= \frac{40}{100} = \frac{2}{5} \\ \Rightarrow \frac{2}{5} \times \frac{24}{4} \times ? &= 48 \\ ? &= \frac{48 \times 5 \times 4}{2 \times 24} = 20\end{aligned}$$

46C

$$\begin{aligned}142 \times 142 \times \frac{1}{\sqrt{1260.25}} \\ \Rightarrow 142 \times 142 \times \frac{1}{35.5} &= 568\end{aligned}$$

47D

$$\begin{aligned}\frac{7}{8} \times 448 + \frac{6}{7} \times 3374 \\ \Rightarrow 392 + 2892 \\ \Rightarrow 3284\end{aligned}$$

48B

49D

$$\begin{aligned}41\% \text{ of } 600 - 250 &= ? - 77\% \text{ of } 900 \\ \Rightarrow 246 - 250 &= ? - 693 \\ \Rightarrow 246 - 250 + 693 &= ? \\ \Rightarrow ? &= 689\end{aligned}$$

50C

$$50.003\% \text{ of } 99.8 \div 49.988 = ?$$

$$? \sim = (50 \times 100/100)/50$$

$$? \sim = (50 \times 100)/(100 \times 50)$$

$$? \sim = 1$$

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