

5-June-2025

Thursday

Number Series:-
CGS 2024:

a $121, 11, 81, 9, \frac{49}{7^2}, 7$
 $11^2 \quad 9^2$

b $100, 50, 25, \frac{12.5}{6.25}$

c $4, 9, 64, 125, 1296, \frac{2401}{}$

d $2, 5, 12, 24, 48, \frac{96}{}$

e $44, 22, 66, 33, 132, \frac{66}{}$

Solve the Number Puzzle?

$2 \times 3 = 6 \times 3 = 18$

$4 \times 5 = 20 \times 5 = 100$

3 $\times 7 = 21 \times 7 = 147$

$$\begin{array}{ccccccc}
 & & & 2 & & & \\
 & & 5 & - & 3 & & \\
 & 6 & - & 1 & - & \underline{4} & \\
 8 & - & 2 & - & 3 & - & 7
 \end{array}$$

$$2 + 7^{9 \times 3} = 27$$

$$4 + 4^{8 \times 3} = 24$$

$$5 + 9^{14 \times 3} = 42$$

$$6 + 0^{6 \times 3} = \underline{18}$$

Q1:-

Find the missing terms

1 2, 3, 6, 4, 5, 20 6 3, 18

2 1, 3, 9, 15, 25 35 49

3 2, 7, 10, 22, 18, 37, 26 52

4 34, 7, 37, 14, 40, 28, 43 56

5 5, 7, 11 13 17, 19

Find the Missing term:-

1 2, 4, 12, 48 240 ?

2 5, 10, 13, 26, 29, 58, 61 122 ?

3 15, 19, 28 44 69, 105

4 B, E, K, W _____ ?

5 $\{(476 + 424)^2 - 4 \times 476 \times 424\} = \underline{807266}$

d How many prime numbers are between each of the following pairs of numbers?

a $\sqrt{3}$ and $\sqrt{120}$

b $^2\sqrt{10}$ and $^2\sqrt{410}$

c $^3\sqrt{10}$ and $^3\sqrt{999}$

d $^3\sqrt{28}$ and $\sqrt{120}$

e $^2\sqrt{8}$ and $\sqrt{400}$

a $\sqrt{3}$, $\sqrt{120}$

Formula $\frac{x+y}{2\sqrt{y}}$

let $x=3$ and $y=4$, let $x=120$ and $y=100$

$\frac{3+4}{2\sqrt{4}}$, $\frac{120+100}{2\sqrt{100}}$

$\frac{7}{2\sqrt{2}}$, $\frac{220}{2\sqrt{6}}$

$\frac{7}{4}$, $\frac{220}{20}$

1.75 , 11

Prime numbers are : $\{2, 3, 5, 7\}$

1.75
4 $\overline{)7}$
4
30
28
20
20
X

b $2\sqrt{10}$ and $2\sqrt{410}$

Formula : $\frac{x+y}{2\sqrt{y}}$

let $x=10$ and $y=9$, let $x=410$ and $y=400$

$\frac{x+y}{2\sqrt{y}}$, $\frac{410+400}{2\sqrt{400}}$

$\frac{10+9}{2\sqrt{9}}$, $\frac{410+400}{2\sqrt{400}}$

$\frac{19}{2\sqrt{3}}$, $\frac{810}{2\sqrt{20}}$

$\frac{19}{6}$, $\frac{810}{40}$

$\frac{19}{6}$, $\frac{81}{4}$

20.25
4 $\overline{)81}$
80
10
8
20
20
X

3.166 , 20.25
 Prime number are : { 5, 7, 11, 13, 17, 19 }

c $3\sqrt[3]{10}$ and $3\sqrt[3]{999}$

Formula : $3\sqrt[3]{q} + \frac{p-q}{3(3\sqrt[3]{q})^2}$

let $p=10$ and $q=8$, let $p=999$ and $q=1000$

$3\sqrt[3]{8} + \frac{10-8}{3(3\sqrt[3]{8})^2}$, $3\sqrt[3]{1000} + \frac{999-1000}{3(3\sqrt[3]{1000})^2}$

$3\sqrt[3]{2^3} + \frac{2}{3(3\sqrt[3]{2^3})^2}$, $3\sqrt[3]{10^3} + \frac{(-1)}{3(3\sqrt[3]{10^3})^2}$

$2 + \frac{2}{3(4)}$, $10 + \frac{(-1)}{3(100)}$

$2 + \frac{2}{12}$, $10 + \frac{(-1)}{300}$

$\frac{24+2}{12}$, $\frac{3000-1}{300}$

$\frac{26}{12}$, $\frac{2999}{300}$

$\frac{13}{6}$, $\frac{2999}{300}$

2.16 , 9.99

Prime numbers are : { 3, 5, 7 }

3.166
 $6 \overline{) 19}$
 3
 18
 10
 6
 40
 36
 40
 36

2.16
 $6 \overline{) 13}$
 2
 12
 10
 6
 40
 36

9.99
 $300 \overline{) 2999}$
 9
 2700
 2990
 2700
 2900
 2700

d $\sqrt[3]{28}$ and $\sqrt[3]{120}$

Formula: $\sqrt[3]{q} + \frac{p-q}{3(\sqrt[3]{q})^2}, \frac{x+y}{2\sqrt[3]{y}}$

let $p=28$ and $q=27$, let $x=120$ and $y=100$

$\sqrt[3]{27} + \frac{28-27}{3(\sqrt[3]{27})^2}, \sqrt[3]{120} + \frac{120+100}{2\sqrt[3]{100}}$

$\sqrt[3]{3^3} + \frac{1}{3(3)^2}, \frac{220}{2\sqrt[3]{10^3}} \quad \begin{array}{r} 27 \overline{) 82} \\ 3 \\ \hline 81 \\ \hline 100 \\ 81 \\ \hline \end{array}$

$3 + \frac{1}{3(9)}, \frac{220}{20}$

$3 + \frac{1}{27}, \frac{22}{2} = 11$

$\frac{81+1}{27}, \frac{11}{1}$

$\frac{82}{27}, 11$

$3.03, 11$

Prime numbers are: $\{5, 7\}$

e $\sqrt[2]{8}$ and $\sqrt[2]{400}$

Formula applying on left side

$\frac{x+y}{2\sqrt[2]{y}}$

let $x=8$ and $y=9$, $\sqrt{400}$

$$\frac{x+y}{2\sqrt{y}}, \sqrt{20^2}$$

$$\frac{8+9}{2\sqrt{9}}, \sqrt{20^2}$$

$$\frac{17}{2\sqrt{3^2}}, 20$$

$$\frac{17}{6}, 20$$

$$\frac{17}{6}, 20$$

$$2.83, 20$$

Prime numbers are: $\{3, 5, 7, 11, 13, 17, 19\}$

$$\begin{array}{r} 2.83 \\ 6 \overline{) 17} \\ \underline{12} \\ 50 \\ \underline{48} \\ 20 \\ \underline{18} \\ 20 \end{array}$$