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Date: _____

NAME: Bushra Farooq

ROLL NO: 072-CSS26-NOR-RWP2-3311

BATCH: 072-CSS26-NOR-RWP2-ONLINE

SUBJECT: Maths (GSA)

ASSIGNMENT: 01

PROBLEM (01): How many prime numbers are between each of the following pairs of numbers?

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

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

Applying formula $\frac{x+y}{2\sqrt{y}}$

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

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

$$\frac{7}{2} , \frac{220}{20}$$

$$3.5 , 11$$

$$2(\sqrt{2}) , 2(\sqrt{10})$$

$$\frac{7}{4} , \frac{22}{2}$$

$$1.75 , 11$$

$$1.75 , 11$$

Prime Numbers in between $\rightarrow \{2, 3, 5, 7\}, 11, 1$

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

$2\sqrt{10}$, $2\sqrt{410}$

Applying formula $\frac{x+y}{2\sqrt{y}}$

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

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

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

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

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

$$3.166 , 20.25$$

Prime Numbers in between $\rightarrow \{5, 7, 11, 13, 17, 19\}$

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

$$\sqrt[3]{10} , \sqrt[3]{999}$$

Applying formula $\sqrt[3]{p+q} = \sqrt[3]{p} + \frac{q}{3(\sqrt[3]{p})^2}$ Let $p = 10$ and $q = 8$, Let $p = 999$ and $q = 1000$

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

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

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

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

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

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

$$2.16 , 9.99$$

Prime Numbers in between $\rightarrow \{3, 5, 7\}$

3.166

$$\begin{array}{r} 19 \\ 12 \\ \hline \end{array}$$

10

6

40

36

40

36

20.25

$$\begin{array}{r} 81 \\ 80 \\ \hline \end{array}$$

10

8

20

20

x

2.16

$$\begin{array}{r} 13 \\ 12 \\ \hline \end{array}$$

10

6

40

36

9.99

$$\begin{array}{r} 999 \\ 2700 \\ \hline \end{array}$$

2790

2700

2900

2700

2700

2700

2700

2700

2700

2700

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

$$\sqrt[3]{28}, \sqrt{120}$$

Applying $\sqrt[3]{p} + \frac{p-q}{3(\sqrt[3]{q})^2}$, Applying $\frac{x+y}{2\sqrt{y}}$ let $p=28$ and $q=27$, let $x=120$ and $y=100$

$$\frac{\sqrt[3]{27} + \frac{28-27}{3(\sqrt[3]{27})^2}}{\sqrt[3]{3^3} + \frac{1}{3(\sqrt[3]{3^3})^2}}, \frac{120+100}{2(\sqrt{100})}$$

$$\frac{3 + \frac{1}{3(9)^2}}{3 + \frac{1}{3(9)^2}}, \frac{220}{2(10)}$$

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

$$\frac{81+1}{27}, \frac{220}{20}$$

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

$$3.03, 11$$

Prime Number in between $\rightarrow \{5, 7\}$ (e) $\sqrt{8}$ and $\sqrt{400}$

$$\sqrt{8}, \sqrt{400}$$

Applying $\frac{x+y}{2\sqrt{y}}$ on left sidelet $x=8$ and $y=9$

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

$$\frac{17}{2(3)}, 20$$

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

$$2.83, 20$$

Prime Numbers in between $\rightarrow \{3, 5, 7, 11, 13, 17, 19\}$

$$\begin{array}{r} 3.03 \\ 27 \overline{) 82} \\ \underline{81} \\ 100 \\ \underline{81} \end{array}$$

$$\begin{array}{r} 2.83 \\ 6 \overline{) 17} \\ \underline{12} \\ 50 \\ \underline{48} \\ 20 \\ \underline{18} \\ 2 \end{array}$$

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PROBLEM (02) : Find Missing Terms.

(a) 121, 11, 81, 9, _____, 7

$$\begin{array}{ccccccc} 121 & , & 11 & , & 81 & , & 9 & , & 49 & , & 7 \\ \uparrow & & & & \uparrow & & & & \uparrow \\ \text{Square} & & & & \text{Square} & & & & \text{Square} \end{array}$$
(b) 100, 50, 25, 1, _____, 6.25
$$\begin{array}{ccccccc} 100 & , & 50 & , & 25 & , & 12.5 & , & 6.25 \\ \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} \\ \div 2 & \div 2 & \div 2 & \div 2 \end{array}$$

(c) 4, 9, 64, 125, 1296, _____

$$\begin{array}{ccccccc} 4 & , & 9 & , & 64 & , & 125 & , & 1296 & , & 2401 \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 2^2 & 3^2 & 4^3 & 5^3 & 6^4 & 7^4 \end{array}$$

(d) 2, 5, 12, 24, 48, _____ (e)

$$\begin{array}{ccccccc} 2 & , & 5 & , & 12 & , & 24 & , & 48 & , & 96 \\ \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} \\ 3 & 6 & 12 & 24 & 48 \\ 2 \times 3 & 2 \times 6 & 2 \times 12 & 2 \times 24 \end{array}$$

(e) 44, 22, 66, 33, 132, _____

$$\begin{array}{ccccccc} 44 & , & 22 & , & 66 & , & 33 & , & 132 & , & 66 \\ \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} & \underbrace{\hspace{1cm}} \\ \div 2 & \div 2 & \div 2 \end{array}$$

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PROBLEM (03): Solve the puzzles.

1-

| | | |
|---|----|-----|
| 2 | 6 | 18 |
| 4 | 20 | 100 |
| 3 | 21 | 147 |

$\times 3$ $\times 3$
 $\times 5$ $\times 5$
 $\times 7$ $\times 7$

Explain steps in the form of words in numeric series questions

Add given, asked, solution, formula, answer

2

| | | | |
|---|---|---|---|
| | | 2 | |
| | 5 | 7 | 3 |
| 6 | 1 | 4 | |
| 8 | 2 | 3 | 7 |

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3-

$$2 + 7 = 27$$

$$4 + 4 = 24$$

$$5 + 9 = 42$$

$$6 + 0 = 18$$

R. W

$$2+7 = 9 \times 3 \rightarrow 27$$

$$4+4 = 8 \times 3 \rightarrow 24$$

$$5+9 = 14 \times 3 \rightarrow 42$$

$$6+0 = 6 \times 3 \rightarrow 18$$