NAME: Bushra Farooq

ROLL NO: 072-CSS26-NOA-RWP2-3311

BATCH: 072-CSS26-NOA-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 $\dfrac{x+y}{2\sqrt{y}}$

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

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

$$\dfrac{7}{2(\sqrt{2^2})} \quad , \quad \dfrac{220}{2(\sqrt{10^2})}$$

$$\dfrac{7}{4} \quad , \quad \dfrac{220}{20}$$

$$1.75 \quad , \quad 11$$

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 $\dfrac{x+y}{2\sqrt{y}}$

```
        1.75
      4 | 7
          4
          30
          28
          20
          20
           x
```

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

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

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

$$\frac{19}{6} \quad , \quad \frac{81\cancel{0}}{4\cancel{0}}$$

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

$$3 \cdot 166 \quad , \quad 20 \cdot 25$$

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

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

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

Applying formula $\sqrt[3]{q} + \dfrac{P-q}{3\left(\sqrt[3]{q}\right)^2}$

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

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

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

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

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

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

$$\frac{\cancel{26}\,^{13}}{\cancel{12}\,_6} \quad , \quad \frac{2999}{3000}$$

$$2 \cdot 16 \quad , \quad 9 \cdot 99$$

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

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

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

Applying $\sqrt[3]{q} + \dfrac{P-q}{3(\sqrt[3]{q})^2}$, Applying $\dfrac{x+y}{2\sqrt{y}}$

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

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

$\sqrt[3]{3^3} + \dfrac{1}{3(\sqrt[3]{3^3})^2}$, $\dfrac{220}{2(\sqrt{10^2})}$

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

$\dfrac{81 + 1}{27}$, $\dfrac{\overset{11}{\cancel{220}}}{\cancel{20}}$

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

$3 \cdot 03$, 11

Prime Number in between $\to \{5, 7\}$

$\begin{array}{r} 3\cdot03 \\ 27\overline{\smash{)}82} \\ \underline{81} \\ 100 \\ \underline{81} \end{array}$

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

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

Applying $\dfrac{x+y}{2\sqrt{y}}$ on left side

let $x = 8$ and $y = 9$

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

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

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

2.83 , 20

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

$\begin{array}{r} 2\cdot83 \\ 6\overline{\smash{)}17} \\ \underline{12} \\ 50 \\ \underline{48} \\ 20 \\ \underline{18} \\ 2 \end{array}$

PROBLEM (02): Find Missing Terms.

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

121, 11, 81, 9, <u>49</u>, 7

Square   Square   Square

(b) 100, 50, 25, <u>1</u> _____, 6·25

100, 50, 25, <u>12·5</u>, 6·25

÷2   ÷2   ÷2   ÷2

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

4, 9, 64, 125, 1296, <u>2401</u>

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

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

2, 5, 12, 24, 48, <u>96</u>

3   6   12   24   48

2×3   2×6   2×12   2×24

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

44, 22, 66, 33, 132, <u>66</u>

÷2   ÷2   ÷2

PROBLEM (03): Solve the puzzles.

1-

×3	×3

2	6	18
4	20	100
3	21	147

×5 ×5

×7 ×7

2

```
              2
         5    ⊖    3
      6   ⊖    1   ⊖    4
   8  4  2  ↑  3  ↑  7
      ⊖      ⊖      ⊖
```

3-

	R. W
2 + 7 = 27	2+7 = 9×3 → 27
4 + 4 = 24	4+4 = 8×3 → 24
5 + 9 = 42	5+9 = 14×3 → 42
6 + 0 = 18	6+0 = 6×3 → 18