

Exercise on Number System:

1. Find the prime factorization of 1240 using three different methods:

⇒ a) Multiplication:

$$1240 = 2 \times 620$$

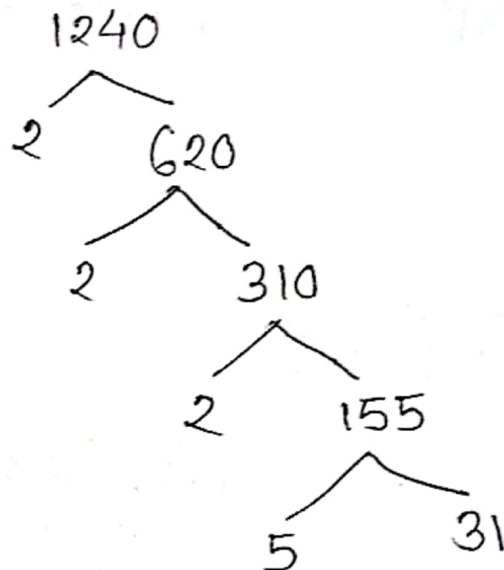
$$= 2 \times 2 \times 310$$

$$= 2 \times 2 \times 2 \times 155$$

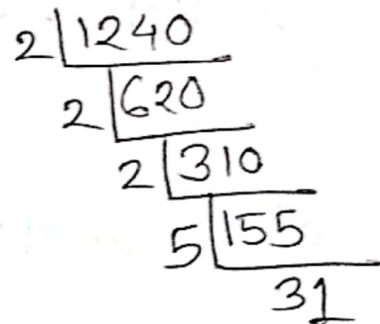
$$= 2 \times 2 \times 2 \times 5 \times 31$$

$$\therefore 1240 = 2^3 \cdot 5^1 \cdot 31^1$$

b) Tree:



c) Divison:



2. Find the all factors of 1240.

$$\Rightarrow \text{Formula: } G = p^l \cdot q^m$$

$$\text{number of factors} = (l+1) \cdot (m+1)$$

Similarly,

$$\text{Total factors of } 1240 = (3+1) \cdot (1+1) \cdot (1+1)$$

[from (1)]

$$= 4 \cdot 2 \cdot 2$$

$$= 16$$

Calculation of factors of 1240:

$$1240 = 1 \times 1240$$

$$= 2 \times 620$$

$$= 4 \times 310$$

$$= 5 \times 248$$

$$= 8 \times 155$$

$$= 10 \times 124$$

$$= 20 \times 62$$

$$= 31 \times 40$$

$\therefore 1240 = 1, 2, 4, 5, 8, 10, 20, 31, 40, 62, 124, 155,$
 $248, 310, 620, 1240.$

3. Find all the prime factors of 1240.

⇒

$$\begin{array}{r} 2 \overline{)1240} \\ \underline{2 \quad 620} \\ 2 \overline{)310} \\ \underline{2 \quad 155} \\ 5 \overline{)155} \\ \underline{31} \end{array}$$

$$1240 = \cancel{(2^3)} \cdot \cancel{(3+1)} \cdot (2^3 \cdot 5^1 \cdot 31^1)$$

4. Find all composite factors of 1240

⇒ ~~1240~~ composite factors are those which is not considered as prime factors like 2, 3, 5 and more.

∴ 1240 composite factors are:

4, 8, 10, 20, 40, 62, 124, 155, 248, 310,

620, 1240 [from ②]