Exercise:

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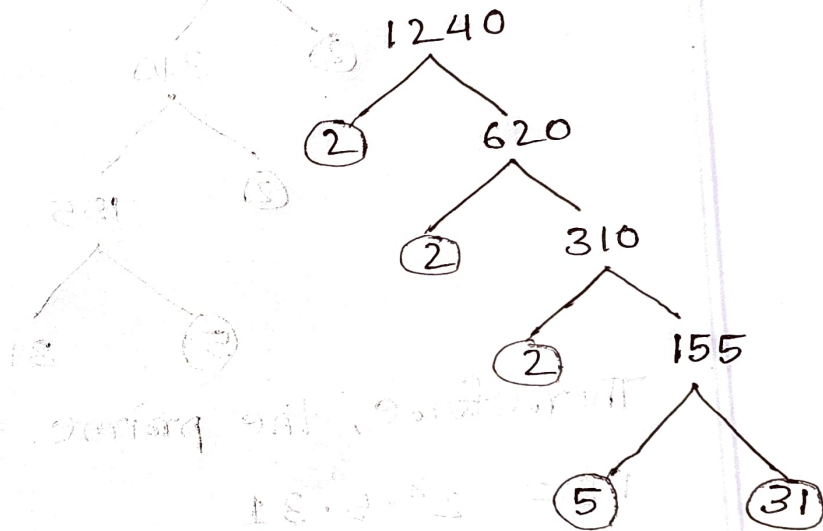
⇒ prime factorization of 1240:

→ Division method:

Three Diagram:

$$
\begin{array}{r|l}
2 & 1240 \\
2 & 620 \\
2 & 310 \\
5 & 155 \\
  & 31
\end{array}
$$

$= 2^3 \cdot 5 \cdot 31$

1240

2   620

2   310

2   155

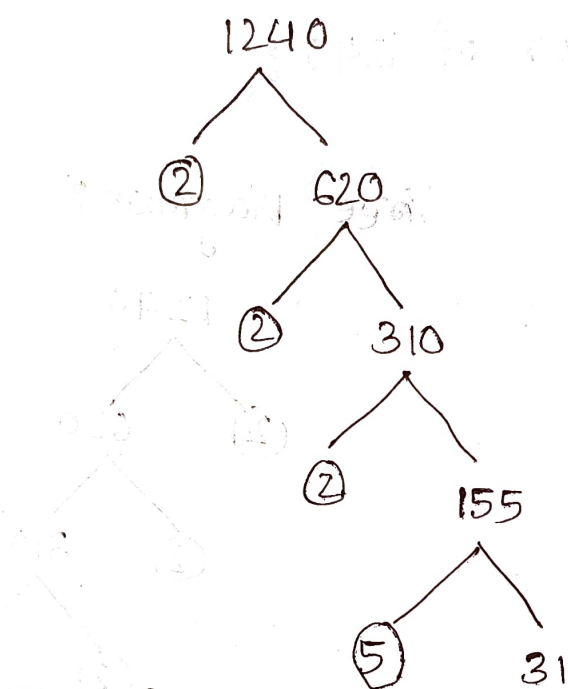5   31

$= 2^3 \cdot 5 \cdot 31$

Therefore, the prime factoriztion of 1240 = $2^3 \cdot 5 \cdot 31$

multiplication Method:

$1240 = 2 \times 620 = 2 \times 2 \times 310 = 2^v \times 2 \times 155 = 2^3 \times 5 \times 31$

2. Find the all factors of 1240 using tree diagram.

Tree diagram of 1240 →

$$1240$$

```
        1240
        /  \
      (2)   620
            /  \
          (2)   310
                /  \
              (2)   155
                    /  \
                  (5)    31
```

Therefore, the prime factorization of 1240 is = $2^3 \cdot 5 \cdot 31$

So, the total number of factors of 1240 is = $(3+1)(1+1)(1+1)$
$$= 4 \cdot 2 \cdot 2$$
$$= 16$$

Calculation for all factors:

1240 = 1 × 1240

= 2 × 620

= 4 × 310

= 5 × 248

= 8 × ~~1240~~ 155

= 10 × 124

= 20 × 62

= 31 × 40

So, the factors of 1240 are:

1, 2, 4, 5, 8, 10, 20, 31, 40, 62, 124, 155, 248, 310, 620, 1240

3. Find all the prime factors of 1240.

calculation of 1240 fators:

1240 = 1 × 1240

= 2 × 620

= 4 × 310

= 5 × 248

= 8 × 155

= 10 × 124

= 20 × 62

= 31 × 40

So, all the prime factors of 1240 are ⇒ 2, 5 and 31

4. Find all the composite factors of 1240.

Calculation of 1240 factors:

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

So, all the composite factors are:

4, 8, 10, 20, 40, 62, 124, 155, 248, 310, 620, 1240