

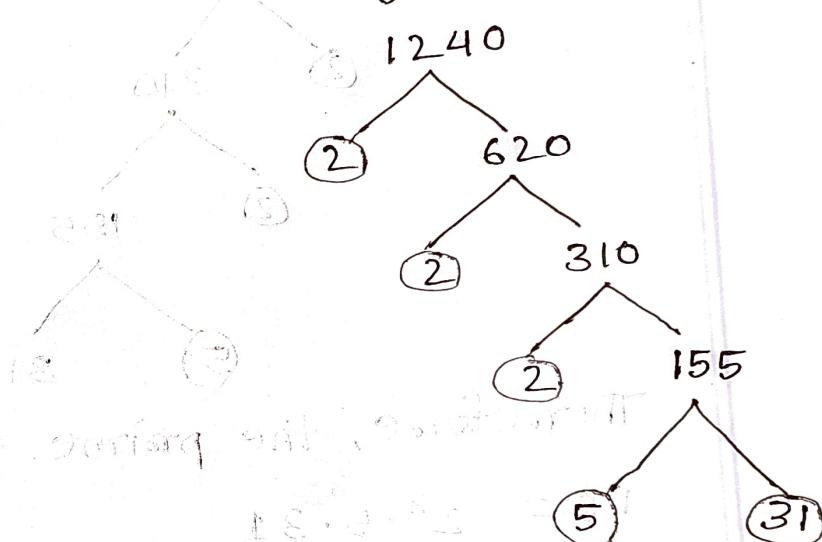
Exercise: ~~QPSI~~ to find the prime factorization of 1240 using
 1. Find the prime factorization of 1240 using
 three different methods.

→ prime factorization of 1240:

→ Division method:

$$\begin{array}{r} 2 \mid 1240 \\ 2 \mid 620 \\ 2 \mid 310 \\ 5 \mid 155 \\ 31 \end{array}$$

Tree Diagram:



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

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

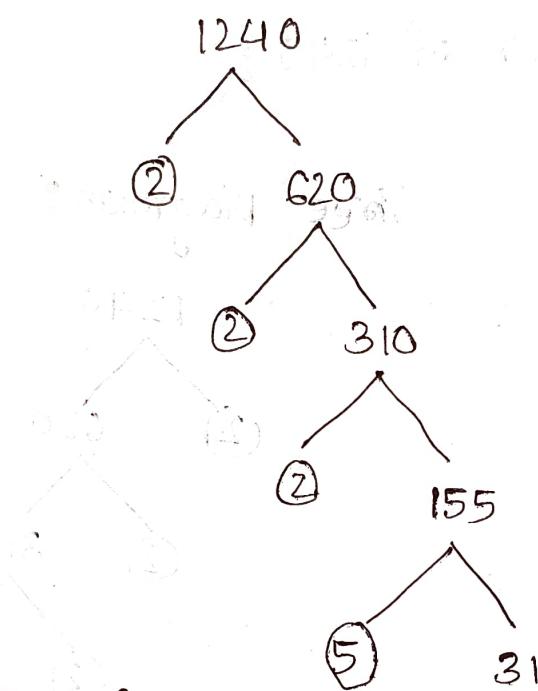
of $1240 = 2^3 \cdot 5 \cdot 31$ (iii) (i.e.) of QPSI

multiplication Method:

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

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

Tree diagram of 1240



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

So, the total number of factors of 1240 is

$$\begin{aligned} &= (3+1)(1+1)(1+1) \\ &= 4 \cdot 2 \cdot 2 \\ &= 16 \end{aligned}$$

Calculation for all factors of 1240

$$\begin{aligned}1240 &= 1 \times 1240 \quad \text{1240 is even so multiply by 2} \\&= 2 \times 620 \quad \text{620 is even so multiply by 2} \\&= 4 \times 310 \quad \text{310 is odd so multiply by 3} \\&= 5 \times 248 \quad \text{248 is even so multiply by 2} \\&= 8 \times 155 \quad \text{155 is odd so multiply by 5} \\&= 10 \times 124 \quad \text{124 is even so multiply by 2} \\&= 20 \times 62 \quad \text{62 is even so multiply by 2} \\&= 31 \times 40 \quad \text{40 is even so multiply by 2}\end{aligned}$$

So, the factors of 1240 are:

1, 2, 4, 5, 8, 10, 20, 31, 40, 62, 124, 155, 248, 310, 620, 1240
∴ 1240 is composed of three odd numbers.

Q3. Find all the prime factors of 1240.

calculation of 1240 factors:

$$\begin{aligned}1240 &= 1 \times 1240 &= 20 \times 62 \\&= 2 \times 620 &= 31 \times 40 \\&= 4 \times 310 \\&= 5 \times 248 \\&= 8 \times 155 \\&= 10 \times 124\end{aligned}$$

∴ all the prime factors of 1240 are $\Rightarrow 2, 5 \text{ and } 31$

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

(Convert O.P.S to natural no.)

O.P.S to natural numbers are 4, 8, 10, 20, 40, 62, 124, 155, 248, 310, 620, 1240

62, 124, 155 & 310

are prime numbers

4, 8, 10, 20, 40