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Section: "U"

Exercise:

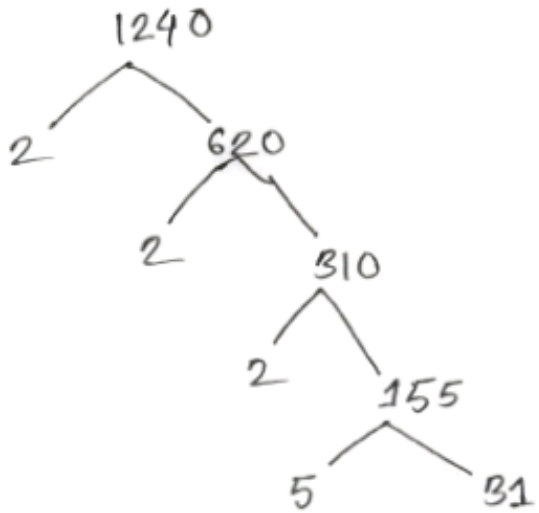
① Find the prime factorization of 1240 using three different methods.

Solution:

Division method:

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

Tree diagram:



Mutiplication Method:

$$\begin{aligned} 1240 &= 2 \times 620 \\ &= 2 \times 2 \times 310 \\ &= 2 \times 2 \times 2 \times 155 \\ &= 2 \times 2 \times 2 \times 5 \times 31 \end{aligned}$$

Therefore, the prime factorization of 1240 is, $2^3 \cdot 5^1 \cdot 31$ Ans

and total number of factors of 1600 is,

$$(3+1)(1+1)(1+1)$$
$$= 4 \times 2 \times 2$$
$$= 16 \text{ (Ans)}$$

(2) Find all factors of 1240.

Solution:

$1240 = 1 \times 1240$
$= 2 \times 620$
$= 4 \times 310$
$= 5 \times 248$
$= 8 \times 155$
$= 10 \times 124$
$= 20 \times 60$
$= 31 \times 40$

All the 8 factors of 1240 are,

1, 2, 4, 5, 8, 10, 20, 31, 40, 60, 124, 155, 248, 310, 620, 1240.

(3) Find all the prime factors of 1240.

Solution: From "2",

All the factors of 1240 are, 1, 2, 4, 5, 8, 10, 20, 31, 40, 60, 124, 155, 248, 310, 620 and 1240.

All the prime factor of 1240 are,

2, 5, 31 (Ans)

(4) Find all the composite factors of 1240.

Solution:

From the Solution of question number '2',

All the factors of 1240 are: 1, 2, 4, 5, 8, 10, 20, 31, 40, 60, 124, 155, 248, 310, 620 and 1240.

Therefore, all the composite factors of 1240 are:

4, 8, 10, 20, 40, 60, 124, 155, 248, 310, 620 and 1240 (Ans)