# MAT-111

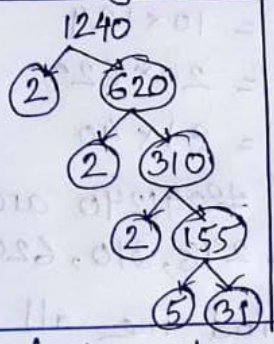
Name: Anik Podder

Student ID: 221-15-5093

## Number System

**Problem 01:** Find the prime factorization of 1240 using three different methods.

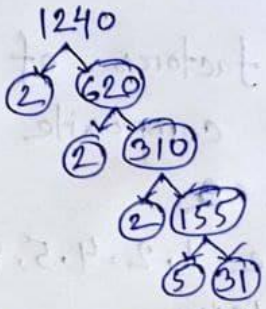
→ Answer:

| Division method: | Tree Diagram: | Multipication Method: |
|---|---|---|
| 2 \| 1240<br>2 \| 620<br>2 \| 310<br>5 \| 155<br>31 |  | $1240 = 2 \times 620$<br>$= 2 \times 2 \times 310$<br>$= 2 \times 2 \times 2 \times 155$<br>$= 2 \times 2 \times 2 \times 5 \times 31$<br>$= 2^3 \times 5 \times 31$ |

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

**Problem 02:** Find the all factores of 1240 using tree diagram.

→ Answer: Tree Diagram




The prime factorization 1240 is $= 2^3 \cdot 5 \cdot 31$

We know,

∴ Total number of factores, $Q = (l+1)(m+1)(n+1)$

∴ Total number of factores of 1240 $= (3+1)(1+1)(1+1)$

$= 4 \cdot 2 \cdot 2$

$= 16$

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

The factors of ~~1204~~1240 are 1, 2, 4, 5, 8, 10, 20, 31, 40, 62, 124, 155, 248, 310, 620, 1240.

# Problem 03: Find the all prime factors of 1240.

→ Answer:
$2 \mid 1240$
$2 \mid 620$
$2 \mid 310$
$5 \mid 155$
$31$

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

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

# Problem 04: Find the all composite factors of 1240.

→ Answer: From problem 02,
the factors of 1240 are 1, 2, 4, 5, 8, 10, 20, 31, 40, 62, 124, 155, 248, 310, 620, 1240.
∴ the composite factors of 1240 are 4, 8, 10, 20, 40, 62, 124, 155, 248, 310, 620, 1240.