

Prime Numbers

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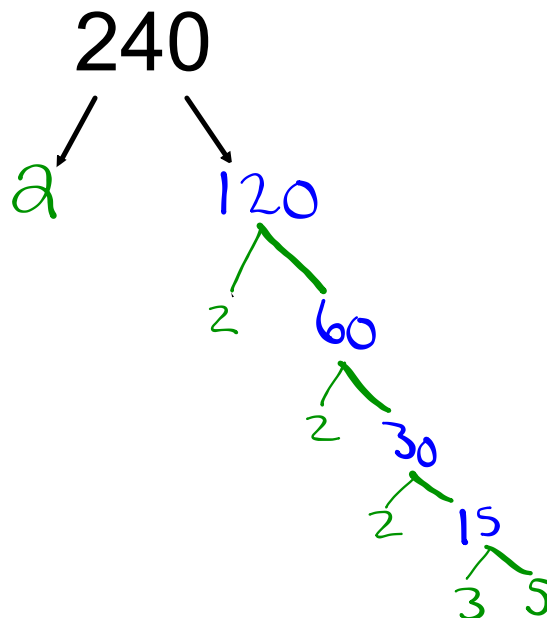
A Prime Number can be divided evenly **only** by 1 & itself.
And it must be a whole number greater than 1.

The first few prime numbers are 2, 3, 5, 7, 11, 13, 17 etc.....

Determining the Prime Factors of a Whole Number

Write the prime factorization of 240

Draw a Factor
Tree !!



The Prime Factorization of 240 is:

$2 \times 2 \times 2 \times 2 \times 3 \times 5$

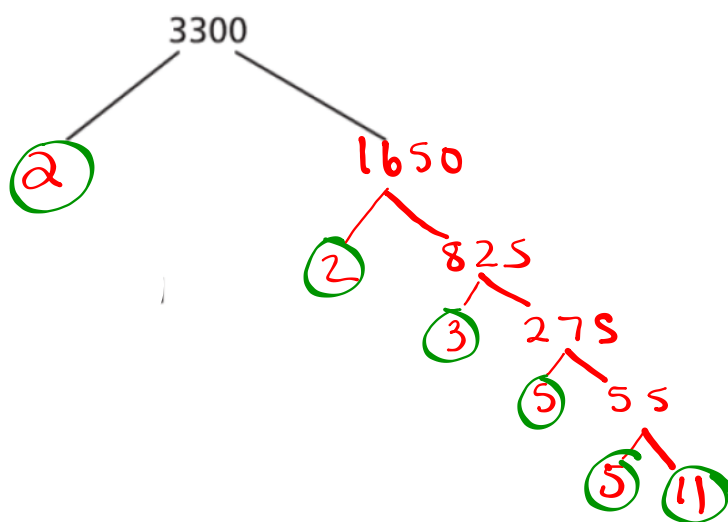
or

$2^4 \times 3 \times 5$

The Prime Factors of 240 are:

$2, 3, 5$

Write the prime factorization of 3300 and the factors



The prime factors of 3300 are 2, 3, 5, and 11.

The prime factorization of 3300 is: $2 \cdot 2 \cdot 3 \cdot 5 \cdot 5 \cdot 11$,
or $2^2 \cdot 3 \cdot 5^2 \cdot 11$

Finding Factors

What is a "Factor" ?

Factors are the numbers you multiply together to get another number:

$$\begin{array}{c} 2 \times 3 = 6 \\ \text{Factor} \nearrow \quad \searrow \text{Factor} \end{array}$$

Sometimes we need to find all of the factors of a number:

Find all the factors of 12:

the factors of 12 are 1, 2, 3, 4, 6, 12

Because: $1 \times 12 = 12$

$$2 \times 6 = 12$$

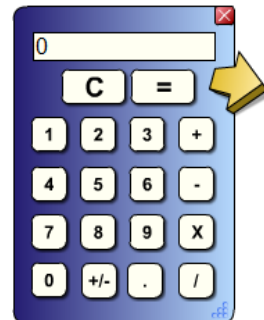
$$3 \times 4 = 12$$

$$\begin{array}{r} 12 \\ \hline 1 \times 12 \\ 2 \times 6 \\ 3 \times 4 \end{array}$$

Lets try some bigger numbers!

Determine all of the factors of 132

$$\begin{array}{r} 132 \\ \hline 1 \times 132 \\ 2 \times 66 \\ 3 \times 44 \\ 4 \times 33 \\ 6 \times 22 \\ 11 \times 12 \end{array}$$



Factors 1, 2, 3, 4, 6, 11, 12, 22, 33, 44, 66, 132

Lets try some bigger numbers!

Determine all of the factors of 132

$$132 \div 1 = 132$$

$$132 \div 2 = 66$$

$$132 \div 3 = 44$$

$$132 \div 4 = 33$$

$$132 \div 6 = 22$$

$$132 \div 11 = 12$$

These
are the
factors
of 132!

The Factors of 132 are : 1, 2, 3, 4, 6, 11, 12, 22, 33, 44, 66, 132

Lets try some bigger numbers!

Determine all of the factors of 162

$$\underline{162}$$

$$1 \times 162$$

$$2 \times 81$$

$$3 \times 54$$

$$6 \times 27$$

$$9 \times 18$$

Factors of 162: 1, 2, 3, 6, 9, 18, 27, 54, 81, 162

Lets try some bigger numbers!

Determine all of the factors of 162

$$162 \div 1 = 162$$

$$162 \div 2 = 81$$

$$162 \div 3 = 54$$

$$162 \div 6 = 27$$

$$162 \div 9 = 18$$

These are the
factors of 162!

The Factors of 162 are : 1, 2, 3, 6, 9, 18, 27, 54, 81, 162

Video On GCF & LCM

 <https://www.youtube.com/watch?v=NFHEH2rzSJo>

Homework

Exercises page 140

A

3

a, b, c

4

5

a, b, c

B

a, c, e

6

7

8

a, c

9

a, c, e

10

11

12

13

14

15

a, d

16

a, d

17

18

20

C

21

22