

1.1 - Prime Factors

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A factor is a number that can multiply with another number to create a larger 3RD number.

Ex. The factors of 10 : 1 and 10
2 and 5

A prime number has exactly (only) 2 unique factors: 1 and itself.

Ex. 2, 3, 5, 7, 11, 13, 17, 19, ...

A composite number is a whole number with more than 2 factors.
(not just 1 and a prime)

Ex. 6 $6 = 1 \times 6$
 $6 = 2 \times 3$

⊛ 1 - NOT prime

⊛ 0 - NOT prime

One way to find factor pairs is by using a table :

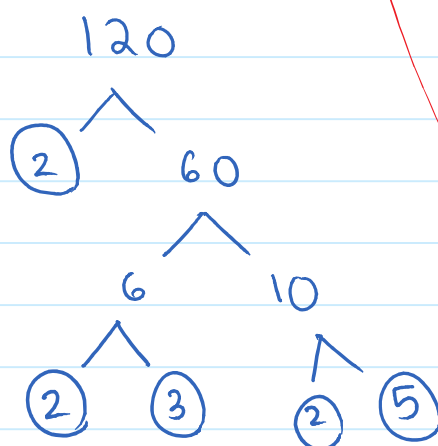
Ex. List the factors of 36:

	36		
increase	↓	1 36	↓
		2 18	
		3 12	↓
		4 9	
		6 6	

* If we want to factor a number FULLY to all its primes we can use

1. Division table
2. Factor tree

Ex. Use a factor tree to factor 120.
List the Prime Factorization Statement:



PF St: List all primes in increasing order

$$120 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 5$$

Expanded form

$$120 = 2^3 \cdot 3 \cdot 5$$

Exponential form

* circle the primes
stop @ primes

Ex. Use a division table to determine the

Prime Factorization Statement for 48.

Always
divide
by
primes

	48
2	24
2	12
2	6
2	3
3	1

PF St :

$$48 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3$$

or

$$48 = 2^4 \cdot 3$$

Keep dividing
until you get to 1