

Factoring Numbers

We can divide whole numbers into two categories (prime and composite). Prime numbers are numbers that are only divisible by 1 and itself such as 3, 5, 11, 13. Composite numbers are numbers that are products of prime numbers such as 6, 15, 20.

One of the major things that we need to do with whole numbers is to factor the composite numbers into their prime parts, called factoring.

Ex.

$$10 = 2 * 5$$

$$20 = 2 * 2 * 5$$

Ex.

Factor 105

Start with the small primes and check for divisibility

2 does not work since 2 does not divide 105 evenly

but 3 works

$105 = 3 * 35$ now factor 35 as $5 * 7$ so we get

$$105 = 3 * 5 * 7$$

Ex.

Factor 129

2 won't work but 3 does

$129 = 3 * 43$, 43 is prime so

$$129 = 3 * 43$$

Ex.

Factor 400

$$400 = 2 * 200 \text{ FACTOR 200}$$

$$400 = 2 * 2 * 100 \text{ FACTOR 100}$$

$$400 = 2 * 2 * 2 * 50 \text{ FACTOR 50}$$

$$400 = 2 * 2 * 2 * 5 * 5 \text{ DONE}$$