

# L1 Factors and Multiples



L1 Factors and Multiples

## Lesson 1 Factors and Multiples of Whole Numbers

### Definitions:

**Factor:** a number that divides evenly into another number  
ie. factors of 18 are 1, 2, 3, 6, 9, and 18

**Multiples:** the result of multiplying a number by a whole number  
(or by skip counting)  
ie. some multiples of 6 are 6, 12, 18, 24...

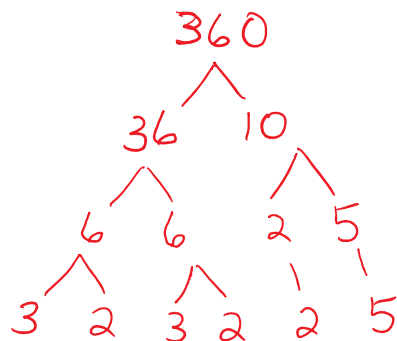
**Greatest Common Factor (GCF):** the largest factor two or more terms have in common  
ie. the greatest common factor of 28 and 42 is 14

**Prime Factorization:** a natural number written as a product of its prime factors  
ie. the prime factorization of 60 is  $2^2 \cdot 3 \cdot 5$

**Least Common Multiple (LCM):** the smallest number that is divisible by two or more numbers  
ie. the least common multiple of 5 and 6 is 30

### Example 1: Prime Factorization

Determine the prime factorization of 360.

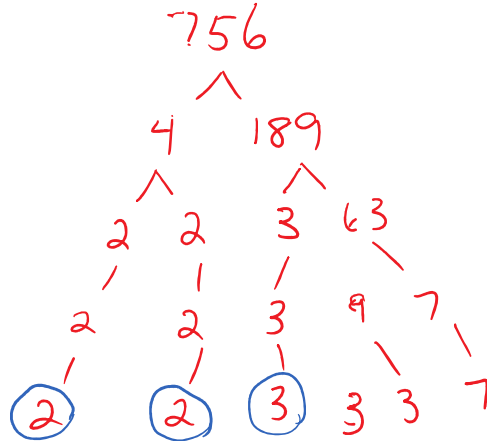
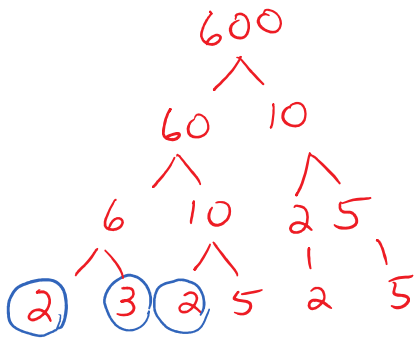


Prime factorization  
 $2^3 \cdot 3^2 \cdot 5$

Try 192

**Example 2: Greatest Common Factor (GCF)**

Determine the GCF of 600 and 756



GCF  $2 \cdot 2 \cdot 3$   
12

Try 81 and 54

**Example 3: Determining the Least Common Multiple**

Determine the least common multiple of 600 and 756.

600  
 $2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 \cdot 5$

756  
 $2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 7$

LCM  $2^3 \cdot 3^3 \cdot 5^2 \cdot 7$   
37 800

GCF  
 $3 \cdot 3 \cdot 3$   
27  
65 and 104  
GCF  
13

Try 15 and 20

pg 70 9e, e, h  
10d, j, n

## **Perfect Squares, Cubes, and their Roots**

**Perfect Square:** a number that can be expressed as the product of two equal factors  
ie. 1, 4, 9, 16, 25, 36, 49, 64...

**Square Root:** a number which multiplied by itself produces the original number

**Perfect Cube:** a number that can be expressed as the product of three equal factors  
ie. 1, 8, 27, 64, 125, 216...

**Cube Root:** a number which multiplied by itself three times produces the original number

### **Example 1: Square Roots**

Determine the square root of 3600.

**Example 2: Determining the Cube Root of a Whole Number**

Determine the cube root of 2744.