

Prime #

A number that is  
divisible by itself and 1.

2, 3, 5, 7, 11, 13, 17, 19, 23

108

$$1+0+8=9$$

# Prime Factorization

$$\begin{array}{r}
 2 \overline{) 48} \\
 \underline{3 \overline{) 24}} \\
 \underline{2 \overline{) 8}} \\
 \underline{2 \overline{) 4}} \\
 2
 \end{array}
 \quad
 2^4 \cdot 3$$

$$2 \cdot 2 \cdot 2 \cdot 2 \cdot 3$$

1.  $2 \overline{) 4} = 2 \cdot 2 \cdot n \cdot n \cdot n$

2.  $2 \overline{) 20} \quad 2 \cdot 2 \cdot 5 \cdot c \cdot c \cdot b$   
 $5 \overline{) 10}$   
 $2$

3.  $3 \overline{) 12} \quad 2 \cdot 2 \cdot 3 \cdot q \cdot q \cdot s \cdot s$   
 $2 \overline{) 4}$   
 $2$

$$\begin{array}{r}
 2 \overline{) 12} \\
 \underline{3 \overline{) 6}} \\
 \underline{2 \overline{) 2}} \\
 1
 \end{array}$$

6.  $2 \cdot 2 \cdot 5 \cdot m \cdot m \cdot m \cdot c \cdot c$

7.  $3 \cdot 5 \cdot n \cdot n$

8.  $2 \cdot 2 \cdot 2 \cdot m \cdot m \cdot m \cdot h$

4.  $2 \cdot 2 \cdot 2 \cdot k$

5.  $2 \cdot 7 \cdot h \cdot h \cdot c \cdot c$

9.  $2 \cdot 3 \cdot 3 \cdot z \cdot q \cdot q \cdot q$

10.  $2 \cdot 2 \cdot 2 \cdot 2 \cdot d \cdot d \cdot d \cdot n \cdot n \cdot n$

$$\begin{array}{r}
 2 \overline{) 16} \\
 \underline{2 \overline{) 8}} \\
 \underline{2 \overline{) 4}} \\
 2
 \end{array}$$

# Greatest Common Factor (GCF)

$$\begin{array}{r|l|l}
 7 & 28 & 42 \\
 \hline
 2 & 4 & 6 \\
 \hline
 & 2 & 3 \\
 \hline
 \end{array}
 \quad \begin{array}{l} \text{GCF} \\ 14 \end{array}$$
  

$$\begin{array}{r|l|l}
 \text{GCF} \\ 14 & 28 & 42 \\
 \hline
 & 2 & 3 \\
 \hline
 \end{array}$$

$$\begin{array}{r|l|l}
 7 & 42 & 56 \\
 \hline
 2 & 6 & 8 \\
 \hline
 & 3 & 4 \\
 \hline
 \end{array}$$

$$\begin{array}{r|l|l}
 9x & 36x & 54x \\
 \hline
 2 & 4 & 6 \\
 \hline
 & 2 & 3 \\
 \hline
 \end{array}
 \quad \begin{array}{l} \text{GCF} \\ 18x \end{array}$$

Ex left side

$$\begin{array}{r} \text{GCF} \\ 7x^2 \end{array}
 \quad \begin{array}{l} 7x^2, 21x^3 \\ 7x^2 \overline{) 7x^2 \mid 21x^3} \\ \quad \underline{1 \quad 3} \end{array}$$

$$\begin{array}{r} 6yx, 30x^2y \\ 6xy \overline{) 6xy \mid 30x^2y} \\ \quad \underline{11 \quad 5} \end{array}$$

ex  $15a^2b^3c, 3ab^2$

$$\begin{array}{r} \text{GCF} \\ 3ab^2 \end{array}
 \quad \begin{array}{l} 3ab^2 \overline{) 15a^2b^3c \mid 3ab^2} \\ \quad \underline{5 \quad 1} \end{array}$$

1, 3, 5, 7, 9