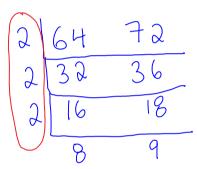Mathematics 9
GCF & LCM

A. Greatest Common Factor (GCF)

The Greatest Common Factor is defined as **the largest number that divides evenly into two or more numbers.** When looking for the GCF for numbers we can use Prime Factorization to help us out.

What is the Greatest Common Factor for the following numbers?

64 & 72

$$2 \mid 64 \quad 72$$
$$2 \mid 32 \quad 36$$
$$2 \mid 16 \quad 18$$
$$\quad 8 \quad \quad 9$$

$$GCF = 2 \times 2 \times 2$$
$$= \boxed{8}$$

Find the Greatest Common Factor (GCF) for each pair of numbers.

1) 24 & 32

$$2 \mid 24 \quad 32$$
$$2 \mid 12 \quad 16$$
$$2 \mid 6 \quad \quad 8$$
$$\quad 3 \quad \quad 4$$

$$GCF = 2 \times 2 \times 2$$
$$= \boxed{8}$$

2) 48 & 60

$$2 \mid 48 \quad 60$$
$$2 \mid 24 \quad 30$$
$$3 \mid 12 \quad 15$$
$$\quad 4 \quad \quad 5$$

$$GCF = 2 \times 2 \times 3$$
$$= \boxed{12}$$
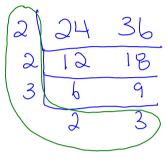
B. Least Common Multiple (LCM)

The Least Common Multiple is defined as **the smallest multiple that two numbers have in common**. When looking for the LCM we can use Prime Factorization to help us out.

What is the Lowest Common Multiple for the following numbers?

$$24 \quad \& \quad 36$$

$$
\begin{array}{r|cc}
2 & 24 & 36 \\
2 & 12 & 18 \\
3 & 6 & 9 \\
  & 2 & 3 \\
\end{array}
$$

$LCM = 2 \times 2 \times 3 \times 2 \times 3$

$= \boxed{72}$

Find the Least Common Multiple (LCM) for each pair of numbers.

1) 12 & 32

$$
\begin{array}{r|cc}
2 & 12 & 32 \\
2 & 6 & 16 \\
  & 3 & 8 \\
\end{array}
$$

$LCM = 2 \times 2 \times 3 \times 8$

$= \boxed{96}$

2) 15 & 25

$$
\begin{array}{r|cc}
5 & 15 & 25 \\
  & 3 & 5 \\
\end{array}
$$

$LCM = 5 \times 3 \times 5$

$= \boxed{75}$

Assignment: GCF & LCM Assignment #1 - 18

A. Find the GCF & LCM for each pair of numbers.

1) 20 & 60   2) 24 & 48

3) 36 & 48   4) 45 & 60

5) 50 & 125   6) 18 & 48

7) 28 & 40   8) 60 & 75

9) 24 & 32

10) 18 & 30

11) 27 & 54

12) 16 & 80

13) 16 & 40

14) 42 & 63

15) 16 & 36

16) 20 & 80

17) 32 & 80

18) 54 & 90