

## Lesson 18: Least Common Multiple and Greatest Common Factor

### Classwork

#### Exercises

- 1.) Choose one of these problems that has not yet been solved. Find the greatest common factor using the methods we learned in class.

GCF (30, 50)

GCF (30, 45)

GCF (45, 60)

GCF (42, 70)

GCF (96, 144)

Next, choose one of these problems that has not yet been solved:

- a. There are 18 girls and 24 boys who want to participate in a Trivia Challenge. If each team must have the same ratio of girls and boys, what is the greatest number of teams that can enter? Find how many boys and girls each team would have.
  
  
  
  
  
  
  
  
  
  
- b. Ski Club members are preparing identical welcome kits for new skiers. The Ski Club has 60 hand-warmer packets and 48 foot-warmer packets. Find the greatest number of identical kits they can prepare using all of the hand-warmer and foot-warmer packets. How many hand-warmer packets and foot-warmer packets would each welcome kit have?

- c. There are 435 representatives and 100 senators serving in the United States Congress. How many identical groups with the same numbers of representatives and senators could be formed from all of Congress if we want the largest groups possible? How many representatives and senators would be in each group?
- 2.) Choose one of these problems that has not yet been solved. Find the least common multiple using the methods we learned in class.

LCM (9, 12)

LCM (8, 18)

LCM (4, 30)

LCM (12, 30)

LCM (20, 50)

Next, choose one of these problems that has not yet been solved.

- a. Hot dogs come packed 10 in a package. Hot dog buns come packed 8 in a package. If we want one hot dog for each bun for a picnic with none left over, what is the least amount of each we need to buy? How many packages of each item would we have to buy?
- b. Starting at 6:00 a.m., a bus stops at my street corner every 15 minutes. Also starting at 6:00 a.m., a taxi cab comes by every 12 minutes. What is the next time both a bus and a taxi are at the corner at the same time?
- c. Two gears in a machine are aligned by a mark drawn from the center of one gear to the center of the other. If the first gear has 24 teeth, and the second gear has 40 teeth, how many revolutions of the first gear are needed until the marks line up again?

3.) Choose one of these problems that has not yet been solved. Solve using the distributive property.

Find the GCF from the two numbers, and rewrite the sum using the distributive property.

1.  $12 + 18 =$

2.  $42 + 14 =$

3.  $36 + 27 =$

4.  $16 + 72 =$

5.  $44 + 33 =$

4.) Find the GCF using Euclid's Algorithm

a. GCF (96, 144)

b. GCF (660, 840)

### Problem Set

- Use Euclid's algorithm to find the greatest common factor of the following pairs of numbers:
  - GCF (12, 78)
  - GCF (18, 176)
- Shelly and Michelle are making a quilt. They have a piece of fabric that measures 48 inches by 168 inches.
  - All pieces of fabric must be square with none left over. What is the side length of the largest square pieces into which Shelly and Michelle can cut the fabric?
  - How many pieces of this size can Shelly and Michelle cut?