Topic 1

LESSON 1.5a

Composing and Decomposing Numbers

6.NS.4

Objective

Least Common and Greatest Common Factor

Warm-Up

Write the prime factorization of each number. Use the factor tree

1. 21

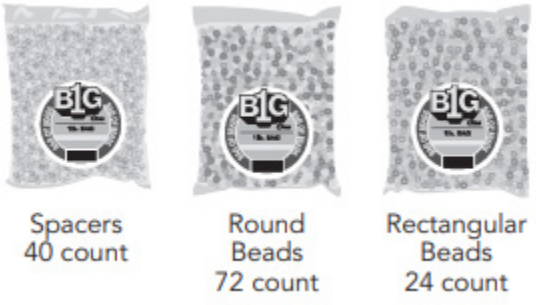
3. 42

2. 30

4. 59

Beads, Beads, Beads

Emily has three bags of different types of beads. She wants to split up the beads into mixed packages to share with her friends. She wants each package to have exactly the same number of each type of bead with no beads left over.



1. What is the greatest number of packages that Emily can assemble? Describe the collection of beads in each package.

EXPLORE 1

Calculating the Greatest Common Factor

In the previous activity, you determined the greatest number of packages that Emily could make from three different types of beads. In other words, you were looking for the greatest number that is a factor of the three other numbers (40, 72, and 24).

One way to determine the greatest common factor is to start by listing all the prime factors of each number. The table shows the prime factorization of 24, 40, and 72.

Number	Prime Factors					
24	2	2	2	3		
40	2	2	2		5	
72	2	2	2	3		3

1. Analyze the table and circle the common prime factors.
The greatest common factor is the product of the common prime factors.

2. What is the greatest common factor of 24, 40, and 72?

3. What is the least common factor of 24, 40, and 72?

4. Rewrite the numeric expression 24 + 40 + 72 using the Distributive Property and the GCF.

5. Determine the greatest common factor of each pair.

a. 36 and 48

b. 37 and 81

6. Rewrite each numeric expression using the Distributive Property and the GCF.

a. 36 + 48

b. 37 + 81

EXPLORE 2

Using GCF and LCM to Solve Problems

Remember that common factors help you think about how to divide, or share things equally. Common multiples help you think about how things with different cycles can occur at the same time.

1. Ramon and Justine are watching different broadcasts of a parade on television. The broadcast Ramon is watching airs commercials every 17 minutes. The broadcast Justine is watching airs commercials every 14 minutes. Both broadcasts started at 7:00 a.m. and are scheduled to end at 9:00 a.m. When will commercials air on both broadcasts at the same time? Explain your reasoning.

2. Two cyclists ride on the same circular path. The first rider completes a lap in 12 minutes. The second rider completes a lap in 18 minutes. Both riders start at the starting line at the same time and go in the same direction. If the riders maintain their speed, after how many minutes will they meet again at the starting line? Explain your reasoning.

3. Dr. Abramson and her assistants are working on three different experiments using water. Each experiment lasts for 15 minutes. For the first experiment, the water level must be checked every 12 seconds. For the second experiment, the temperature of the water must be checked every 30 seconds. For the third experiment, the color of the water must be checked every 36 seconds. In minutes, list the times all three experiments will need to be checked at the same time.

Name: _____ Date: _____ Class: _____

Homework HW

LESSON 1.5a

Composing and Decomposing Numbers

Objective Least Common and Greatest Common Factor

List out the first two common multiples for each pair of numbers.

1) 3, 4

Multiples of 3 : _____

Multiples of 4 : _____

Common multiples : _____ and _____

2) 2, 5

Multiples of 2 : _____

Multiples of 5 : _____

Common multiples : _____ and _____

3) 12, 8

Multiples of 12 : _____

Multiples of 8 : _____

Common multiples : _____ and _____

4) 4, 6

Multiples of 4 : _____

Multiples of 6 : _____

Common multiples : _____ and _____