Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_

Finding the Greatest Common Factor (GCF) and Least Common Multiple ( LCM)

**Greatest Common Factor**-the greatest (largest) of the common factors of two or more numbers

**Least Common Multiple**- the least (smallest) of the common multiples of two or more numbers

There are 2 primary ways to find the GCF and the LCM of numbers -

**1)The “Listing” method:**

|  |  |
| --- | --- |
| **GCF** | **LCM** |
| Find the GCF of 18 and 24  List all the factors of 18, and all the factors of 24.  18:  24:  Circle the **common factors**.  The **largest** one is the Greatest Common Factor, or GCF | Find the LCM of 18 and 24  List the first five multiples of 18, and the first five multiples of 24.  18:  24:  If you do not have a **common multiple,** you need to keep listing multiples until you do.  If you **do** have a common multiple, the smallest one is your LCM |
| **GCF Practice-listing method** | **LCM Practice-listing method** |
| Find the GCF of 16 and 24: | Find the LCM of 16 and 24: |

Using the listing method, find the GCF of 48 and 72:

Using the listing method, find the LCM of 48 and 72:

**2) The “Slide” (or “Ladder”) method**: The slide method helps us break numbers down by looking at common factors. It is very helpful for finding GCF, LCM, and even fractions in lowest terms

Steps for using the “Slide” method:

1. Begin by looking at your two numbers- identify a **common factor** (a number that divides evenly into both numbers)
2. Write the Common factor to the left, outside your “slide”
3. Divide all numbers by the common factor, and write them below the slide.
4. Look at your quotients from step 3- do you have any common factors? If so repeat steps 2 and 3 until the quotients have no factors in common- it can take as many steps as you need to get there.
5. To find the GCF, multiply all the common factors (the numbers to the left outside the slide-forms the number “1”)
6. To find the LCM, multiple all the common factors and the numbers on the bottom (all the numbers on the left outside the slide, and underneath the slide-forms a big “L”)

**Ex: Find the GCF and the LCM of the following (using the slide method):**

1. 64 and 96
2. 48 and 72
3. 96 and 112

\*Note-there is a 3rd method, known as the Prime Factorization Method, for finding GCF/LCM. It is a much less commonly used method, so we may or may not learn/practice this 3rd method.

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_

**CW/HW-GCF & LCM**

Using the listing method, find the least common multiple:

1. 8, 10
2. 10, 15
3. 6, 9
4. 12, 16

Using the listing method, find the greatest common factor:

1. 12, 15
2. 22, 33
3. 45, 63
4. 15, 50

Using the slide method, find both the GCF and the LCM of the following:

9. 18, 30

10. 18, 48

11. 4, 14

12. 28, 70

13. 60, 84

14. 36, 72

**When you have 3 numbers**, The slide still shows the GCF on the left side, but the LCM is different..