

Lesson 3-4 Greatest Common Factor

SWBAT: Find the GCF of two or more numbers using a division ladder, factor tree or listing the factors.

Definitions:

Common Factor –

Greatest Common Factor –

Finding the Greatest Common Factor:

You can find the GCF by using 3 methods. Listing all the factors, division ladder and by using a factor tree.

Listing all the factors – To use this method, you just need to write _____
_____ for each number.

Ex: Find the GCF of 18 and 30

Factors of 18: 1 , 2 , 3 , 6 , 9 , 18

Factors of 30: 1 , 2 , 3 , 5 , 6 , 10 , 15 , 30 ,

The GCF would be 6 because that is the biggest number in both rows!

Find the GCF in each of these problems:

① 6:

21:

② 18:

49:

③ 14:

28:

Using the division ladder – To find the GCF using a division ladder you have to find _____
_____ for each number and _____.

Ex: Find the GCF of 42 and 56

- First, write the numbers on the same line $\begin{array}{r} 42 \quad 56 \end{array}$
- Next, find a common factor and put it on the outside $2) \begin{array}{r} 42 \quad 56 \end{array}$
- Now divide them and repeat $7) \begin{array}{r} 21 \quad 28 \end{array}$
- Keep dividing until you cannot divide any more $\begin{array}{r} 3 \quad 4 \end{array}$
- Now that we can no longer divide both of the numbers we need to look at the numbers on the side, the 2 and 7.
- Multiply the numbers on the side to get your answer $2 \cdot 7 = 14!$

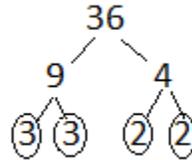
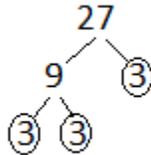
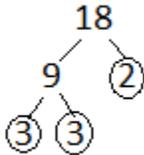
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SWBAT: Find the GCF of two or more numbers using a division ladder, factor tree or listing the factors.

Using the factor tree:

Use _____ and list out the prime factors for each number.

Ex: Find the GCF for 18, 27, 36



Now we must write the Prime numbers for each in a list

18: $3 \cdot 3 \cdot 2$

27: $3 \cdot 3 \cdot 3$

36: $3 \cdot 3 \cdot 2 \cdot 2$

After we make the list, find the numbers that are in every row.

I see a 3 in every row, and another 3 in every row. Now I multiply both those numbers $3 \cdot 3 = 9$. The GCF is 9.

Find the GCF using any method you prefer:

① 20 and 60

② 30 and 35

③ 12, 16, 28

④ 45 and 150

Challenge: A number is a "Perfect Number" if the sum of all its factors (including 1) is equal to twice the number. Find all the perfect numbers in this list: 4, 6, 8, 14, 18, 34, 28, 32