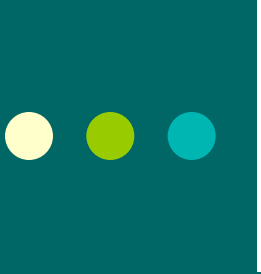




# GCF Problem Solving

How can you tell if a word problem requires you to use Greatest Common Factor to solve?



**We can ask ourselves the following questions to help determine if a problem can be solved using GCF**

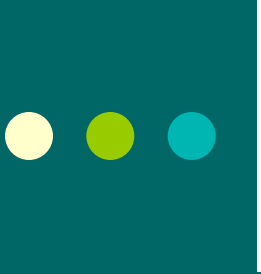
Questions to ask yourself to determine if a problem can be solved using GCF:

- Do we have to split things into smaller sections?
- Are we trying to figure out how many people we can invite/can attend?
- Are we trying to arrange something into rows or groups?



# GCF Problem Solving Example

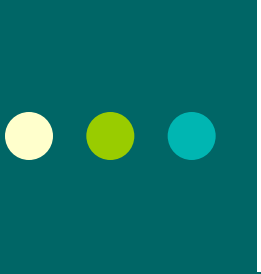
- ❖ Robert has two pieces of wood he wants to use to make a set of stairs. One piece is 72 inches wide and the other piece is 90 inches wide. He wants to cut both pieces into steps equal in width and that are as wide as possible. How wide should he cut the steps?



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What do we know and what is the question asking?

- ❖ We know the pieces of wood are 72 and 90 inches wide.
- ❖ This question is asking how wide should Robert cut the steps so that they are the largest possible equal lengths.



Robert has two pieces of wood he wants to use to make a set of stairs. One piece is 72 inches wide and the other piece is 90 inches wide. He wants to cut both pieces into steps equal in width and that are as wide as possible. How wide should he cut the steps?

This problem can be solved using Greatest Common Factor because we can answer the question:

*“Do we have to split things into smaller pieces?”*

We are going to split the pieces of wood into smaller equal pieces.

Find the GCF of 72 and 90



# GCF Word Problem Solution

**Solve:**

$$\begin{array}{r|l} 9 & 72 \quad 90 \\ \hline 2 & 18 \quad 10 \\ \hline & 4 \quad 5 \end{array}$$

$$\text{GCF} = 9 \times 2 = 18$$

*Robert should cut each piece to be 18 inches wide*



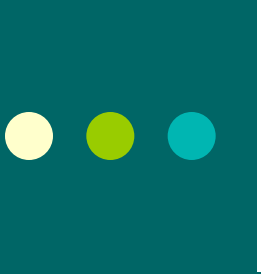
# TEST YOUR KNOWLEDGE

- ★ On a sheet of paper, solve each word problem using GCF...
- ★ What question does the word problem answer that tells you it can be solved using GCF?



# Question #1

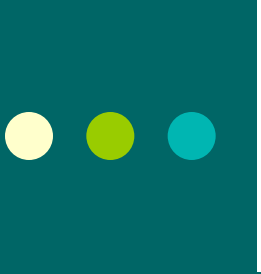
- ❖ Mrs. Evans has 120 crayons and 30 pieces of paper to give to her students. What is the largest # of students she can have in her class so that each student gets equal # of crayons and equal # of paper.



Mrs. Evans has 120 crayons and 30 pieces of paper to give to her students. What is the largest # of students she can have in her class so that each student gets equal # of crayons and equal # of paper.

This problem answers the question:  
*“Are we trying to figure out how many people we can invite or can attend?”*

We need to find the GCF of 120 and 30



Mrs. Evans has 120 crayons and 30 pieces of paper to give to her students. What is the largest # of students she can have in her class so that each student gets equal # of crayons and equal # of paper.

The GCF of 120 and 30 is: 30

*The largest number of students Mrs. Evans can have in her class is 30.*



## Question #2

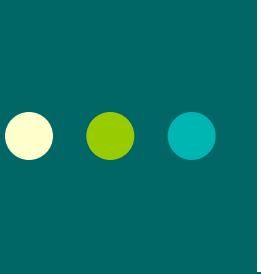
- ❖ Rosa is making a small quilt that is 16 inches by 24 inches. She wants to use square cloth tiles. What is the largest tile she can use?



Rosa is making a small quilt that is 16 inches by 24 inches. She wants to use square cloth tiles. What is the largest tile she can use?

This problem answers the question:  
*“Are we trying to arrange something into rows or groups?”*

We need to find the GCF of 16 and 24



Rosa is making a small quilt that is 16 inches by 24 inches. She wants to use square cloth tiles. What is the largest tile she can use?

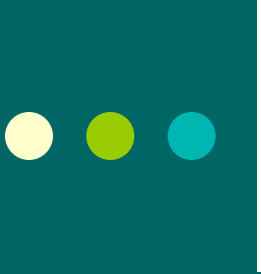
The GCF of 16 and 24 is: 8

*The largest square cloth tile Rosa can use is 8 inches*



## Question #3

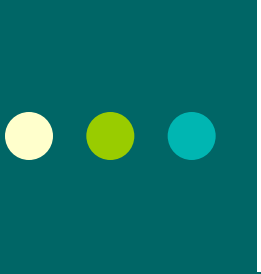
- ❖ I am planting 50 apple trees and 30 peach trees. I want the same number and type of trees per row. What is the maximum number of trees I can plant per row?



I am planting 50 apple trees and 30 peach trees. I want the same number and type of trees per row. What is the maximum number of trees I can plant per row?

This problem answers the question:  
*“Are we trying to arrange something into rows or groups?”*

We need to find the GCF of 50 and 30



I am planting 50 apple trees and 30 peach trees. I want the same number and type of trees per row. What is the maximum number of trees I can plant per row?

The GCF of 50 and 30 is: 10

*The maximum number of trees that I can plant per row is 10.*