GCF and LCM Problem Solving

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

GCF and LCM Problem Solving

First, use the KWL method for approaching all problems…

- **K:** What do you know?
- **W:** What do you want to know
- **L:** What did you learn?

If it is a GCF Problem

- What is the question asking us?
- Do we have to split things into smaller sections?
- Are we trying to figure out how many people we can invite?
- Are we trying to arrange something into rows or groups?

GCF Example: Applying what we have learned…

- Samantha has two pieces of cloth. One piece is 72 inches wide and the other piece is 90 inches wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?

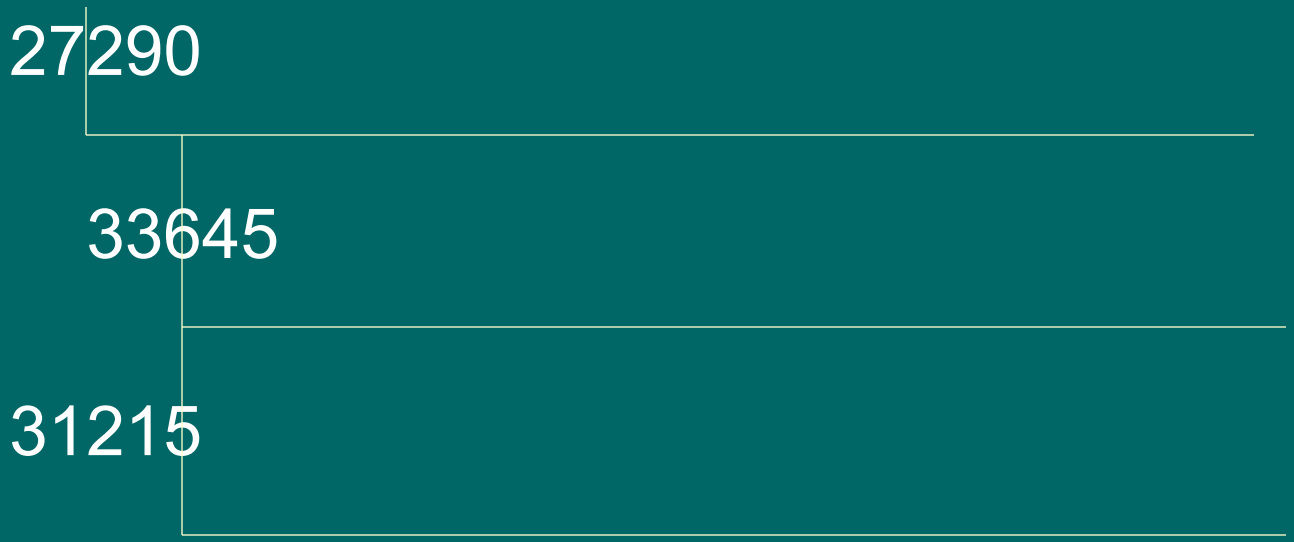
Samantha has two pieces of cloth. One piece is 72 inches wide and the other piece is 90 inches wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?

- K: The pieces of cloth are 72 and 90 inches wide.
- W: How wide should she cut the strips so that they are the largest possible equal lengths.

Samantha has two pieces of cloth. One piece is 72 inches wide and the other piece is 90 inches wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?

- L: This problem can be solved using Greatest Common Factor because we are cutting or “dividing” the strips of cloth into smaller pieces (factor) of 72 and 90.
- Find the GCF of 72 and 90

GCF Word Problem Solution



GCF = 2 x 3 x 3 = 18

Samantha should cut each piece to be 18 inches wide

If it is an LCM Problem

- What is the question asking us?
- Do we have an event that is or will be repeating over and over?
- Will we have to purchase or get multiple items in order to have enough?
- Are we trying to figure out when something will happen again at the same time?

LCM Example: Applying what we have learned…

- Ben exercises every 3 days and Isabel every 2 days. Ben and Isabel both exercised today. How many days in the next 30 days will they both exercise on the same day?

Ben exercises every 3 days and Isabel every 2 days. Ben and Isabel both exercised today. How many days in the next 30 days will they both exercise on the same day?

- **K:** Ben exercises every 3 days and Isabel every 2 days and they both exercised today.
- **W:** How many days in the next 30 days will they both exercise on the same day.

Ben exercises every 3 days and Isabel every 2 days. Ben and Isabel both exercised today. How many days in the next 30 days will they both exercise on the same day?

- **L:** This problem can be solved using Least Common Multiple. We are trying to figure out how many times in 30 days they will repeat their exercise and be exercising at the same time.

- Find the LCM of 3 and 2.

LCM Word Problem Solution

23

There are no common prime factors of 2 and 3, so we just multiply them to get the LCM.

LCM = 2 x 3 = 6

Ben and Isabel would exercise on the same day every 6th day. In 30 days, they would exercise together 5 times (because 30 divided by 6 is 5).

QUIZ!!!!!!

- On a sheet of notebook paper, tell whether the following word problems could be solved using GCF or LCM…

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.

Question #2

- Rosa is making a game board that is 16 inches by 24 inches. She wants to use square tiles. What is the larges tile she can use?

Question #3

- Star 94 gave away a discount coupon for every fifth and sixth caller. Every twentieth caller received free concert tickets. Which caller was first to receive both a coupon and a concert ticket?

Question #4

- Two bikers are riding a circular path. The first rider completes a round in 12 minutes. The second rider completes a round in 18 minutes. If they both started at the same place and time and go in the same direction, after how many minutes will they meet again at the starting point?

Question #5

- Sean has 15-inch pieces of toy train track and Ruth has 6-inch pieces of train track. How many of each piece would each child need to build tracks that are equal in length?

Question #6

- 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?

QUIZ Answers…

- 1.) GCF
- 2.) GCF
- 3.) LCM
- 4.) LCM
- 5.) LCM
- 6.) GCF