Warm Up: List the first 5 multiples of each number:

6

10

12

14

50

Nov 5-7:23 AM

•*What are the first ten multiples of 20? Of 30?*

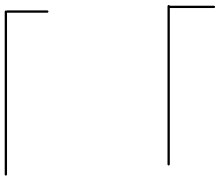
•*What numbers (multiples) occur on both lists? We call these* common multiples.

•*What is the least number that occurs on both lists? This number is called the* least common multiple *of 20 and 30.*

Sep 10-8:22 PM

Least Common Multiple (LCM)

To find the LCM use the upside down "L".



Sep 11-7:38 AM

Have you ever rode on a ferris wheel?

Let's see some history on where ferris wheels come from.

http://player.discoveryeducation.com/index.cfm?guidAssetId=CE3C4BF5-099D-4129-9F0E-5B4CFC20C12D&blnFromSearch=1&productcode=US

Sep 7-2:59 PM

Investigation 3

Common Multiples and Common Factors

Many things happen over and over again in fixed cycles. For example, a morning news program may have a traffic report every 7 minutes. A train may arrive at a particular station every 12 minutes. A cuckoo clock may sound every 15 minutes.

How can you figure out when two events with different cycles can occur at the same time? Thinking about common factors and common multiples can help you solve such problems.

Let's start by comparing the multiples of 20 and 30.

- The multiples of 20 are 20, 40, 60, 80, 100, 120, 140, 160, 180, . . .
- The multiples of 30 are 30, 60, 90, 120, 150, 180, . . .

The numbers 60, 120, 180, 240, . . . , are multiples of both 20 and 30. We call these numbers **common multiples** of 20 and 30. Of these multiples, 60 is the least *common multiple*.

Now let's compare the factors of 12 and 30.

- The factors of 12 are 1, 2, 3, 4, 6, and 12.
- The factors of 30 are 1, 2, 3, 5, 6, 10, 15, and 30.

The numbers 1, 2, 3, and 6, are factors of both 12 and 30. We call these numbers **common factors** of 12 and 30. Of these factors, 6 is the *greatest common factor*.

Aug 8-5:23 PM

3.1 Riding Ferris Wheels

One of the more popular rides at a carnival or amusement park is the Ferris wheel.

Aug 8-5:23 PM

Problem 3.1 Choosing Common Multiples or Common Factors

Jeremy and his little sister, Deborah, are at a carnival. There are both a large and a small Ferris wheel. Jeremy gets on the large Ferris wheel at the same time his sister gets on the small Ferris wheel. The rides begin at the same time. For each situation below, decide how many seconds will pass before Jeremy and Deborah are both at the bottom again.

Aug 12-11:29 AM

A. The large wheel makes one revolution in 60 seconds and the small wheel makes one revolution in 20 seconds.

Aug 12-11:29 AM

B. The large wheel makes one revolution in 50 seconds and the small wheel makes one revolution in 30 seconds.

Aug 12-11:30 AM

C. The large wheel makes one revolution in 10 seconds and the small wheel makes one revolution in 7 seconds.

Aug 12-11:30 AM

D. For Questions A–C, determine the number of times each Ferris wheel goes around before Jeremy and his sister are both on the ground again.

Aug 12-11:30 AM

More practice finding common multiples.

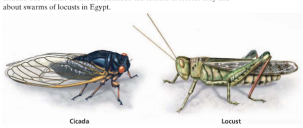
Sep 10-8:21 PM

3.2 Looking at Cicada Cycles

Cicadas (si KAY dahs) spend most of their lives underground. Some populations of cicadas come above ground every 13 years, while others come up every 17 years. Although cicadas do not cause damage directly to fruits and vegetables, they can damage orchards because the female makes slits in trees to lay her eggs.

Did You Know?

Cicadas are sometimes mistakenly called locusts. A locust is actually a type of grasshopper that looks nothing like a cicada. The error originated when early European settlers in North America encountered large outbreaks of cicadas. The swarms of insects reminded the settlers of stories they knew about swarms of locusts in Egypt.



Cicada Locust

Female cicadas lay their eggs in tree branches. When the young cicadas hatch, they drop to the ground and burrow into the soil. They remain underground for 13 or 17 years, feeding off juices from tree roots. Several months before they emerge, cicadas tunnel to the surface and wait to come out.

The mass emergence of cicadas is the key to their survival. There may be up to 1.5 million cicadas per acre! Many will be eaten by predators. However, enough will survive to lay eggs, so a new generation can emerge in 13 or 17 years.

Aug 11-8:15 AM

Problem 3.2 Choosing Common Multiples or Common Factors

Stephan's grandfather told him about a terrible year when the cicadas were so numerous that they wrecked the buds on all the young trees in his orchard. Stephan conjectured that both 13-year and 17-year cicadas came up that year. Assume that Stephan's conjecture is correct.

A. How many years after an appearance of 13-year and 17-year cicadas together will both types of cicadas appear together again? Explain.

B. Suppose there were 12-year, 14-year, and 16-year cicadas, and they all came up this year. How many years will elapse before they all come up together again? Explain.

C. For Questions A and B, tell whether the answer is less than, greater than, or equal to the product of the cicada cycles.

Aug 12-12:45 PM

Practice Options!

Group 1: ACE Questions: 1-8, 15 and/or Holt

Group 2: ACE Questions: 5-8, 10-13, 15

Group 3: ACE Questions: 10-13, 15, 39, 43

Nov 15-2:56 PM

Writing Project!

Today we will make sure ALL questions are answered to complete your writing project. The rest you need to do at home.

We will peer edit Monday 11/25.

Your paper is due Tuesday 11/26.

Nov 15-2:57 PM