**What is Division and How Do We Divide?**

**Part 1**

Consider the following problem situations. Both problems can be solved using division and you will be asked why that is true. In addition, think about how division is being used in each case. Is the way of thinking about division the same? Is it different? Can you explain any differences in the meaning of division that you discover?

Situation 1:

All 5th grade students at Isaac Newton Elementary school are going on a field trip to the Calculator Hall of Fame. There are 237 students who have committed to going on the field trip. In order to be approved by the principal, the 5th grade teachers need enough parent chaperones so that a chaperone is responsible for no more than 5 students. How many parent chaperones are needed?

Situation 2:

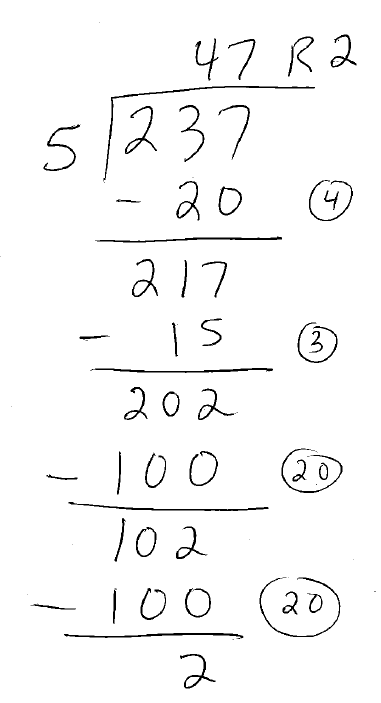
All 5th grade students at Isaac Newton Elementary school are going on a field trip to the Calculator Hall of Fame. There are 237 students who have committed to going on the field trip. The 5th grade teachers have had 42 parent chaperones sign up to help with the trip. How many students will each parent be responsible for during the trip?

1. Explain why division can be used in each case? Based on your thinking about the answer to this question, write a sentence that describes what division means?

2. Compare the two situations. How is the interpretation of division different in Situation 2 than in Situation 1?

**Part 2**

Suppose a student solves the problem given in situation 1 as follows:



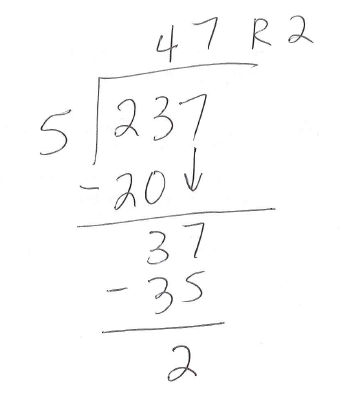
Therefore, they would need 47 chaperones each with 5 students. One more chaperone would be needed and could have just 2 students.

1. Work to make sense of the work that the student performed and explain your understanding of this work to a partner.

2. Can you think of a way that the student could have solved the problem more efficiently? Show how the computations can be done more efficiently.

3. Solve the problem in Situation 2 as efficiently as you are able. Be prepared to explain your thinking.

4. You may have learned to divide using a process called “long division”. Develop an explanation for how this method works and how this method is similar to the work seen previously. That is, try to explain in a meaningful way what is happening when we do long division.



5. Solve the problem from Situation 2 with a partner using “long division”. As you do, speak out loud the steps that you are performing so that you are saying each step in a meaningful way with a focus on what it means to divide. Show all your work below.

**Part 3**

For each situation, decide if the problem can be interpreted using the “How many groups?” interpretation of division or the “How many in each group” interpretation of division. Then solve each problem using any form of division that you like best. Work to be as efficient as you can be.

1. A recipe for chocolate chip cookies calls for 2 cups of flour. You have 19 cups of flour remaining. How many batches of cookies can you make (assuming you have plenty of every other ingredient)?

2. One yard is equivalent to 3 feet. A football field (including the end zones) is 360 feet long. How many yards long is a football field?

3. You have 125 inches of ribbon and want to cut it into 15 pieces of equal length. How long will each of these pieces be?

4. You have a 5 gallon jug of water and will be filling red Solo cups so that each cup holds 12 ounces of water. How many cups can you fill? Note that 1 gallon is equivalent to 128 ounces.

5. You have a 1 gallon jug of water. You have 15 red Solo cups and you want to put the same amount of water in each cup. How much water can you put in each cup? Note that 1 gallon is equivalent to 128 ounces.

6. You have $500 saved to give as birthday money to your 3 siblings. How much money can you give to each sibling if you want to give the same amount to each?