4-1: Learning Goals

- Let's explore quotients of different sizes.

4-1-1: Size of Dividend and Divisor

Find the value of each expression mentally.

$5,000 \div 5$

$5,000 \div 2,500$

$5,000 \div 10,000$

$5,000 \div 500,000$

4-1-2: All Stacked Up

1. Here are several types of objects. For each type of object, estimate how many are in a stack that is 5 feet high. Be prepared to explain your reasoning.
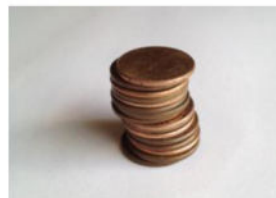
   a. Cardboard boxes

   c. Notebooks

   b. Bricks

   d. Coins

2. A stack of books is 72 inches tall. Each book is 2 inches thick. Which expression tells us how many books are in the stack? Be prepared to explain your reasoning.

   a. $72 \cdot 2$ b. $72 - 2$ c. $2 \div 72$ d. $72 \div 2$

3. Another stack of books is 43 inches tall. Each book is $\frac{1}{2}$-inch thick. Write an expression that represents the number of books in the stack.

4-1-3: All in Order

1. Your teacher will give your group two sets of division expressions. Without computing, estimate their values and arrange each set of expressions in order, from largest to smallest. Be prepared to explain your reasoning. When finished, pause for a class discussion.

2. Record the expressions in each set in order from largest to smallest.

   Set 1

   Set 2

3. Without computing, estimate each quotient and arrange them in three groups: close to 0, close to 1, and much larger than 1. Be prepared to explain your reasoning.

   $30 \div \frac{1}{2}$ $9 \div 10$ $18 \div 19$ $15{,}000 \div 1{,}500{,}000$

   $30 \div 0.45$ $9 \div 10{,}000$ $18 \div 0.18$ $15{,}000 \div 14{,}500$

   close to 0   close to 1   much larger than 1

4-1: Lesson Synthesis

The size of the *dividend* (the number that we are dividing) and the size of the *divisor* (the number we use to divide) both affect the quotient (the result of dividing).

- What happens to the quotient when we divide by smaller and smaller numbers?

- Which would result in a smaller quotient: dividing a number by 0.5 or dividing it by 5? Why?

- What can we say about the quotient when the divisor is much smaller than the dividend?

- What about when we divide a number by another number that is much larger?

- What can we say about the quotient when the divisor and dividend are about the same size?

4-1: Learning Targets

- When dividing, I know how the size of a divisor affects the quotient.

4-1-4: **Result of Division**

Without computing, decide whether the value of each expression is much smaller than 1, close to 1, or much larger than 1.

1. $1,000,001 \div 99$

2. $3.7 \div 4.2$

3. $1 \div 835$

4. $100 \div \frac{1}{100}$

5. $0.006 \div 6,000$

6. $50 \div 50\frac{1}{4}$

4: Pre-Assessment