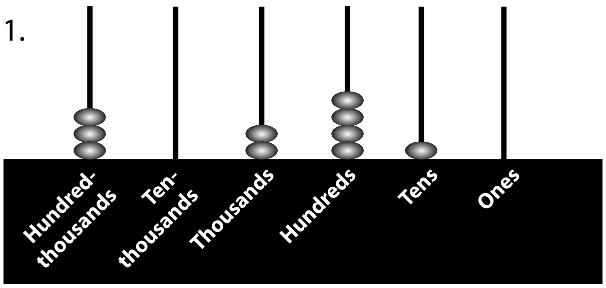
Standard 3.1D; 3.1E; 3.1F; 3.2B (M)

Place Value & Counting Racks

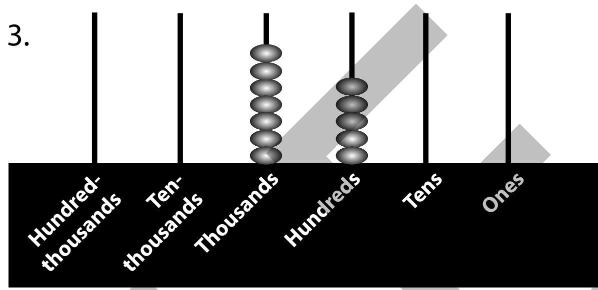
A. Directions: Write the number represented by the beads on each counting rack below. The first one is completed for you.

1.

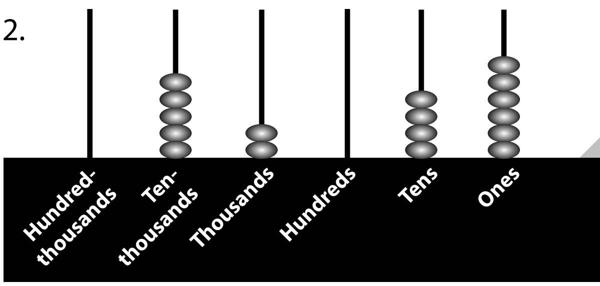


302,410

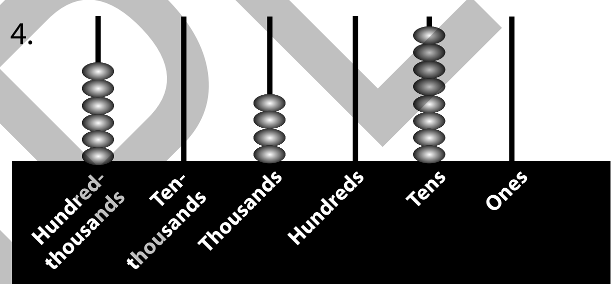
3.



2.

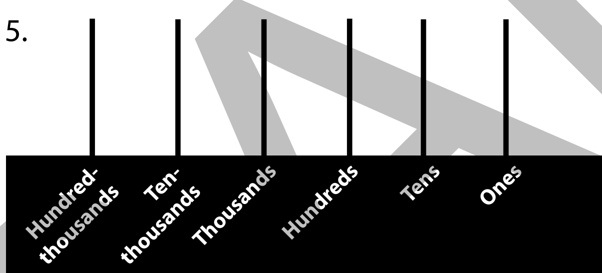


4.



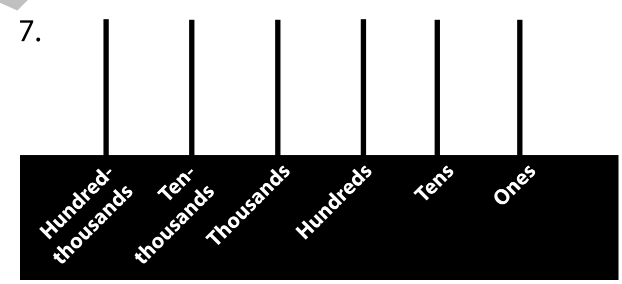
B. Directions: Represent each number below by drawing the correct number of beads on the counting rack.

5.



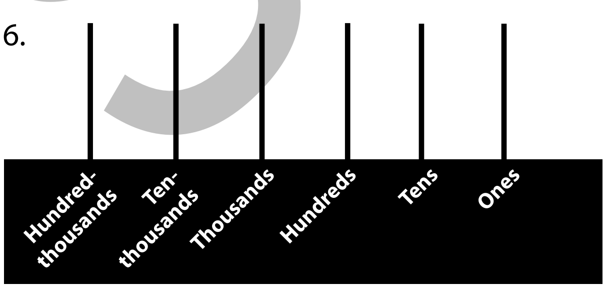
48,150

7.



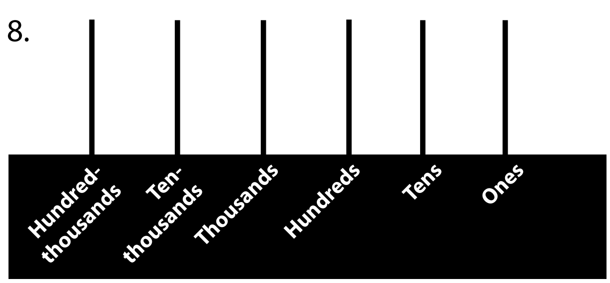
90,205

6.



110,300

8.



350,375

Standard 3.1D; 3.1F; 3.1G; 3.7A (L–M)

Fractions on a Number Line

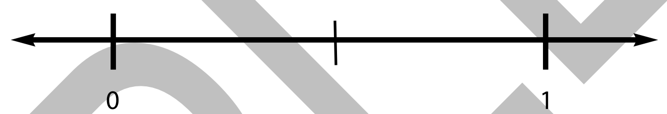
A **number line** is a picture that shows numbers as points on a line. A number line does not show all the numbers on the line. However, even if the numbers are not labeled on a number line, they are still there.

Here are some things you should know about number lines.

- Number lines extend forever in both directions.
- Numbers on a number line are always in order from least to greatest.

Talk About It–1: List some real-world examples of number lines.

Look at the number line to the right.

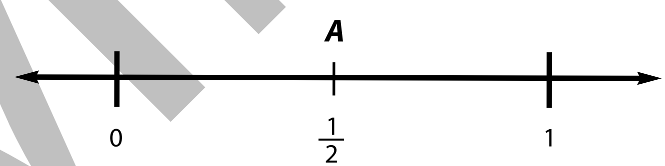


Talk About It–2: What numbers might be between 0 and 1 on a number line?

When a number line is labeled in units of 1 (1, 2, 3, 4…), the values between the whole numbers are fractions.

Example

Look at the number line to the right.



On this number line, think of the space between 0 and 1 as "one whole space." In math, you call this "one whole space" a **unit interval**. This "one whole space," or unit interval, represents all the numbers between two units on the number line. On this number line, the unit interval represents all the numbers between 0 and 1.

Look at the number line again. The unit interval is divided into two equal sections. The distance between 0 and point *A* shows one of the two equal sections.

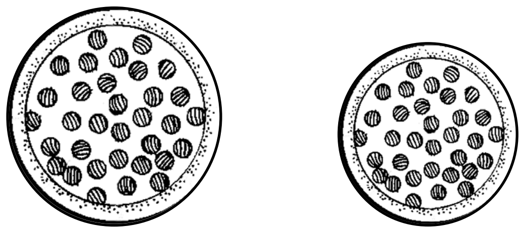
Talk About It–3: Remember, a **fraction** shows how many equal parts of one whole you are talking about.

- What is "one whole" on the number line?
- What does the denominator of a fraction represent?
- What does the denominator of a fraction represent on the number line?
- What does the numerator of a fraction represent?
- What does the numerator of a fraction represent on the number line?

Standard 3.1D; 3.1E; 3.1F; 3.1G; 3.3G (L–M)

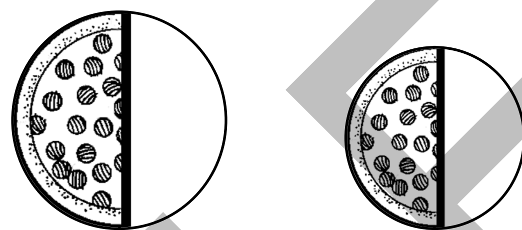
Not Really Equal

Mario and Jack each bought a pizza from the Perfect Pizza Shop. The pictures below show the 2 pizzas.



Mario's Pizza **Jack's Pizza**

Each boy ate part of his own pizza. The pictures below show how much of each pizza was eaten.



Mario's Pizza **Jack's Pizza**

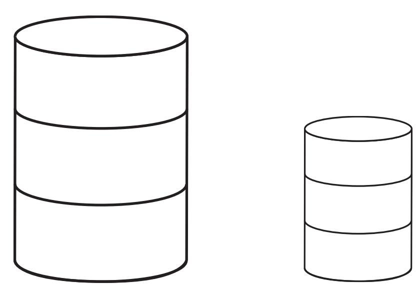
Talk About It–1

- What fraction of his pizza did Mario eat?
- What fraction of his pizza did Jack eat?
- Did the boys each eat the same amount of pizza? How do you know?
- What can you conclude about comparing the fractions of pizza the two boys ate?

You can only compare fractions if you begin with "wholes" that are **identical**. This means you must begin with "wholes" that are the same size. Mario and Jack each ate $\frac{1}{2}$ of a pizza, but Mario ate more pizza than Jack. Why? Mario's "whole pizza" was larger than Jack's "whole pizza."

Let's look at another example.

Jenny and Karina each had a full glass of milk. Each girl drank $\frac{1}{3}$ of her milk. The pictures to the right show the 2 glasses of milk.



Jenny's Glass **Karina's Glass**

Talk About It–2

- What portion of each glass should be shaded to show the amount of milk that each girl drank? Shade that portion on each glass.
- Which girl drank the greater amount of milk? How do you know?
- How could the girls make sure they were drinking the same amount of milk?

Standard 3.1A; 3.1D; 3.1F; 3.1G; 3.4D (L)

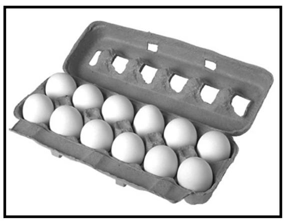
Counting in Sets & Groups

Look around, and you will see that many things come in sets. Gloves come in sets of 2. Car tires come in sets of 4. Crayons often come in sets of 8.

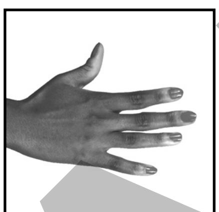
Try It: Look at the items pictured below. Choose the number that shows the correct set for each one, and write that number on the line beside the item.

____ a.

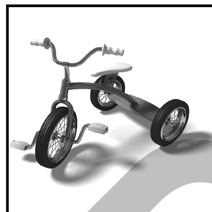
____ b.



____ c.



____ d.



____ e.

Sets

12

2

4

3

5

Working Together: Work with a partner to solve the problem below. In the space provided, draw a picture that shows how you and your partner found the answer. Be ready to share your answer with the rest of the class.

Anna bought 4 bags of candy. Each bag contained 5 pieces of candy. How many pieces of candy did Anna buy in all?

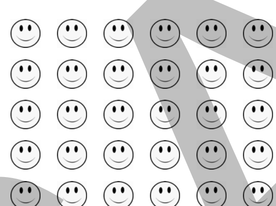
Standard 3.1D; 3.1F; 3.4J; 3.5D (L–M)

Mixing It Up

A. Directions: Read each division problem below. Write each problem as an unknown factor multiplication problem. Show the unknown factor as *b*. Then, write the answer for each division problem. The first one is completed for you.

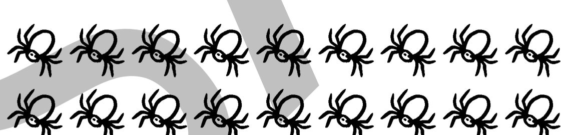
Division Problem	Unknown Factor Problem	Solved Division Problem
1. $48 \div 6 = b$	$6 \times b = 48$	$48 \div 6 = 8$
2. $35 \div 5 = b$		
3. $24 \div 8 = b$		
4. $16 \div 2 = b$		
5. $27 \div 3 = b$		
6. $28 \div 4 = b$		
7. $42 \div 7 = b$		
8. $63 \div 9 = b$		
9. $36 \div 4 = b$		

B. Directions: Look at each array below. Write a multiplication fact to describe each array. Then, draw circles to divide the array into equal groups. Write a division fact to describe how you divided each array.

10. 

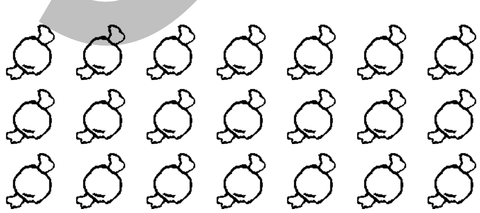
____

____

11. 

____

____

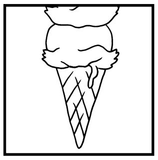
12. 

____

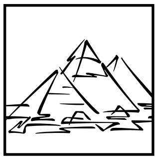
____

On Your Own: Do you recognize three-dimensional figures when you see them? Test your knowledge of three-dimensional figures by completing the activities below.

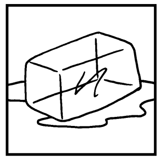
a.



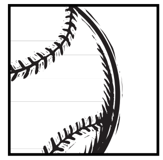
b.



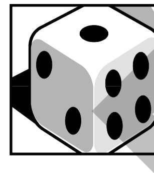
c.



d.



e.



f.

1. **Name That Figure:** Each picture above represents a three-dimensional figure. Write the name of the three-dimensional figure shown in each picture. Then, write the attributes of the figure that helped you name it.

   a. ____________________

   b. ____________________

   c. ____________________

   d. ____________________

   e. ____________________

   f. ____________________

2. **Two-Minute Brainstorm:** List as many other different three-dimensional man-made or natural items as you can. Also, list the attributes that help you identify these figures.

   ____

   ____

   ____

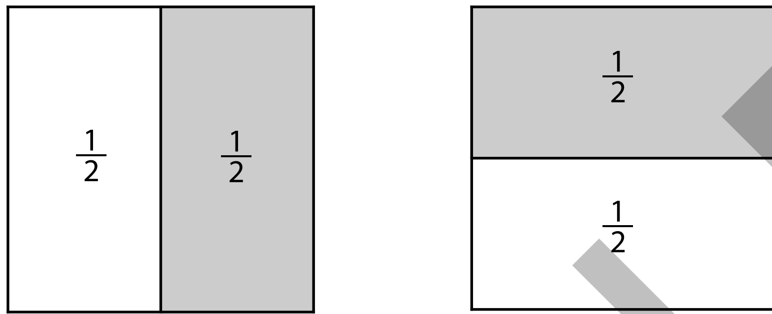
   ____

3. **You're the Artist:** Now, create some figures for yourself. In the space below, draw a picture that includes each of the following three-dimensional figures: cone, pyramid, cube, sphere, cylinder, and prism.

Standard 3.1D; 3.1E; 3.1F; 3.1G; 3.6E (L–M)

Composing & Decomposing Figures

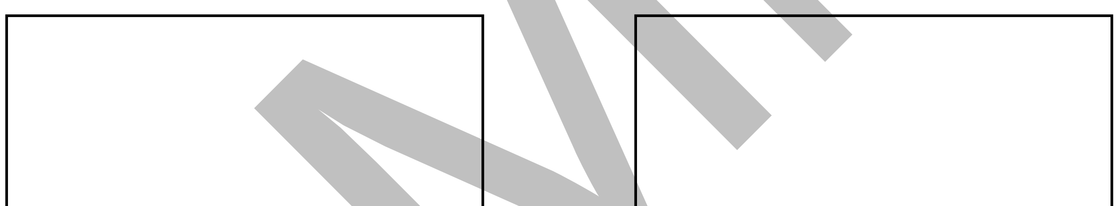
Squares A and B below are the same size. Both squares have been **partitioned** (divided) into halves, but in two different ways.



A **B**

Talk About It: What can you conclude about $\frac{1}{2}$ of square A and $\frac{1}{2}$ of square B?

Try It: Rectangles A and B below are the same size. Partition (divide) both rectangles into thirds, but in two different ways. Label each part of the rectangles as $\frac{1}{3}$.



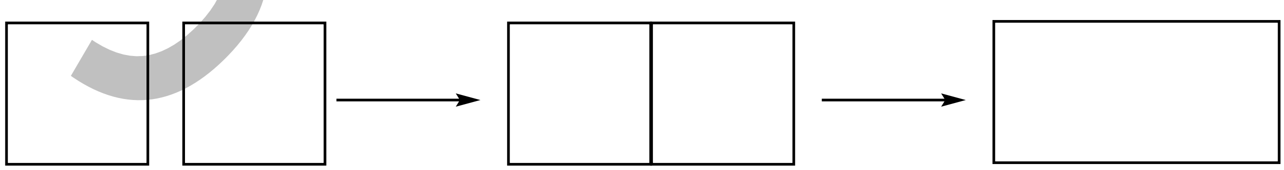
A **B**

What can you conclude about $\frac{1}{3}$ of rectangle A and $\frac{1}{3}$ of rectangle B?

Composing

As you looked at the pictures in the previous lesson, you probably noticed that shapes were made up of other shapes. They can be put together to make new shapes. This is called composing. **Composing** means "making something by putting things together." When you put any two shapes together to make a new shape, you are composing shapes.

What shape would you compose if you put two squares together? You would compose a rectangle.



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Standard 3.1C; 3.1F; 3.1G; 3.7D; 3.7E (L–M)

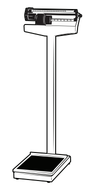
What does it weigh?

How do you know whether or not you can pick something up? Would you be able to pick up a piano by yourself? Probably not! To pick up a piano, you would need a lot of help. How did you know that? You were making a guess about how much the piano weighs.

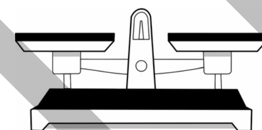
How We Measure

How do we know what something weighs? Here are some tools that we use to measure weight.


kitchen scale


medical scale


bathroom scale


balance scale

By reading a scale, we learn how many pounds or ounces an object weighs.

The Customary System

When you use the **customary system** of measurement, you weigh objects in **pounds** and **ounces**. The pound and ounce are two **units of measure** in the customary system. When you write these measurements, you can abbreviate them (make them shorter). The word ounce is abbreviated as oz. Pound is abbreviated as lb.

An ounce is less than a pound. It takes 16 ounces to equal 1 pound.

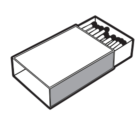
1 pound = 16 ounces

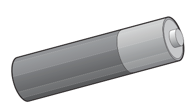
1 lb = 16 oz

How heavy is an ounce? The following items weigh about 1 ounce.


slice of bread


five quarters


box of matches


AA battery

Talk About It–1: What else weighs about 1 ounce? about 5 ounces? about 10 ounces?

continue to next page

Standard 3.1D; 3.1E; 3.1F; 3.1G; 3.8A (L–M)

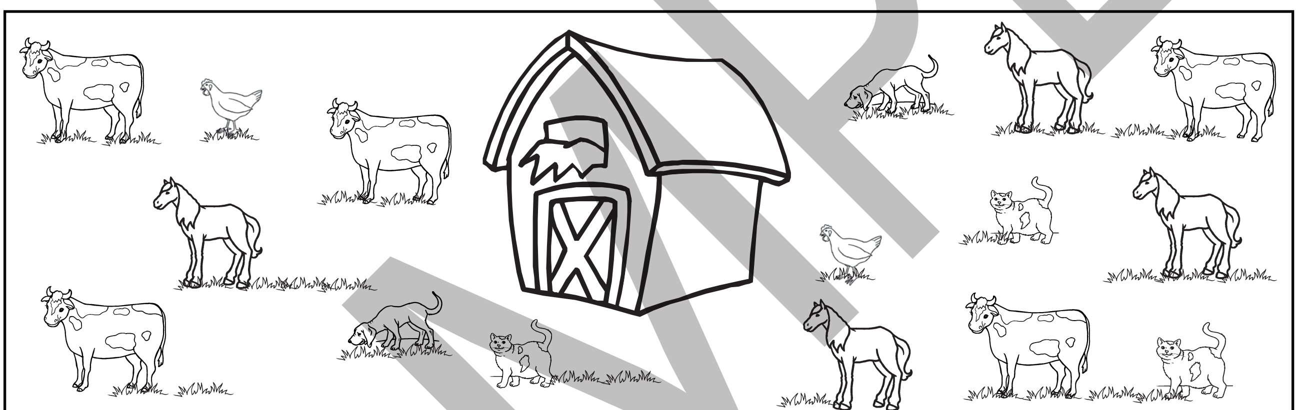
Collecting Data

People can collect all kinds of information about people, places, and things. In math, we call this collected information **data**.

Talk About It–1

- What kinds of data might people want to collect about people, places, and things?
- Why might people want this kind of information?
- How might people use the data they collect?

On Your Own: A farmer wants to know how many animals are in the pasture shown in the picture below. Help the farmer by counting the number of each kind of animal in the pasture. **Record** (write) this data in the first row of the **table** (chart) below. Some data is already recorded in the table.



Animals in the Pasture

	Dogs	Cats	Chickens	Horses	Cows	TOTAL
Number in Pasture	2					
Total Number of Legs	8					

Talk About It–2: Now, count the total number of legs on each kind of animal. Record this data in the second row of the table above. Some data is already recorded in the table.

Standard 3.1A; 3.1F; 3.1G; 3.9B (M–H)

Supply & Demand

Remember: The **supply** is how much of an item that is available. The **demand** is how much of an item people want.

Directions: Read each problem below. Determine whether the supply and demand increased, decreased, or stayed the same. Then, determine whether the cost of each item will likely increase or decrease. Write **I** for increase, **D** for decrease, and **S** for stays the same. Write your answers on the correct answer lines.

1. In Lubbock, the high temperature was below 40 degrees for one week straight. People used their heaters more often to warm their homes. Will the cost of electricity likely increase or decrease?

   Supply: ________________ Demand: ________________ Cost: ________________

2. A truck accidently delivered a double shipment of chicken to a grocery store. The same number of people want to buy chicken as before. Will the cost of chicken likely increase or decrease?

   Supply: ________________ Demand: ________________ Cost: ________________

3. Company A makes tablet computers. Company A can no longer buy the parts it needs for the tablets from Company B because Company B went out of business. A new survey says Company A's tablet is the most popular among consumers. Will the cost of Company A's tablet likely increase or decrease?

   Supply: ________________ Demand: ________________ Cost: ________________

4. A city started a plan to promote healthy eating and exercise. As a result, fewer people are eating fast food. The city has the same number of fast food restaurants as it had before. Will the cost of fast food increase or decrease?

   Supply: ________________ Demand: ________________ Cost: ________________

5. A company made and sold 500 heavy coats during the winter. The company is making 1,000 heavy coats to sell during the summer. Will the cost of the heavy coats increase or decrease?

   Supply: ________________ Demand: ________________ Cost: ________________

