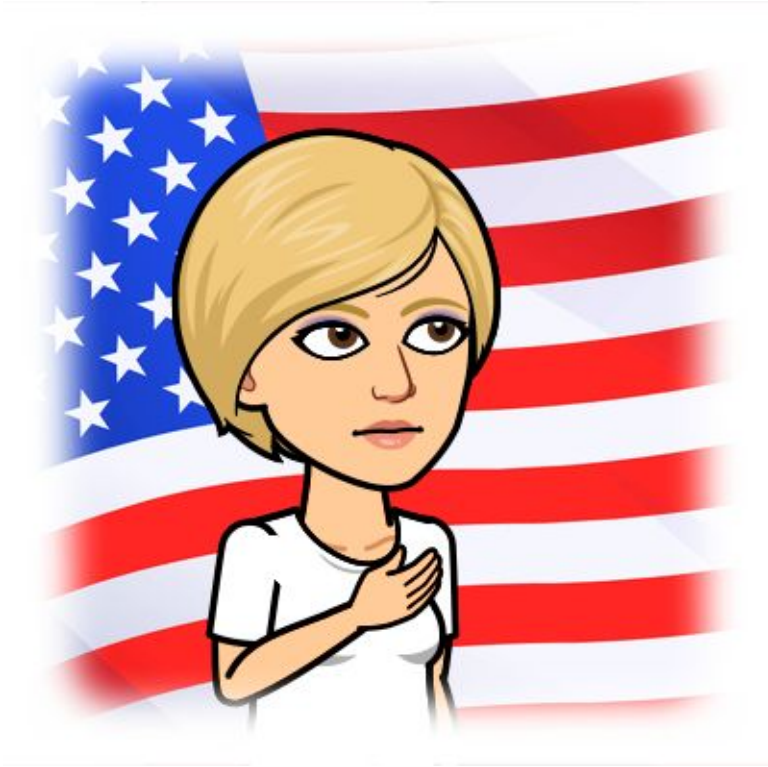
Today's Materials



- pencil
- calculator

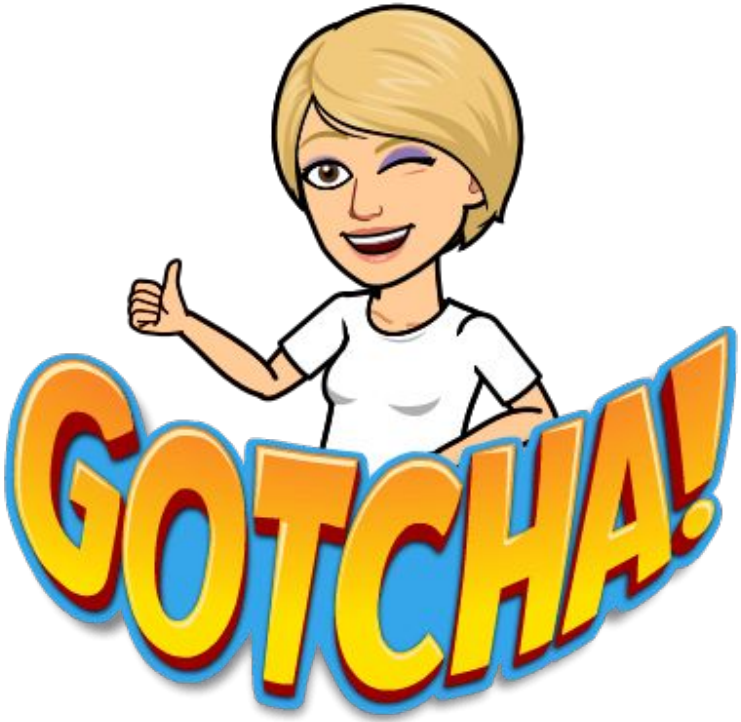
Lots of Flags

Lesson 1

CCSS Standards: Building on	• 6.RP.A • 7.G.A.1
CCSS Standards: Building towards	• 7.RP.A • 7.RP.A.1 • 7.RP.A.2.a

Today's Goals

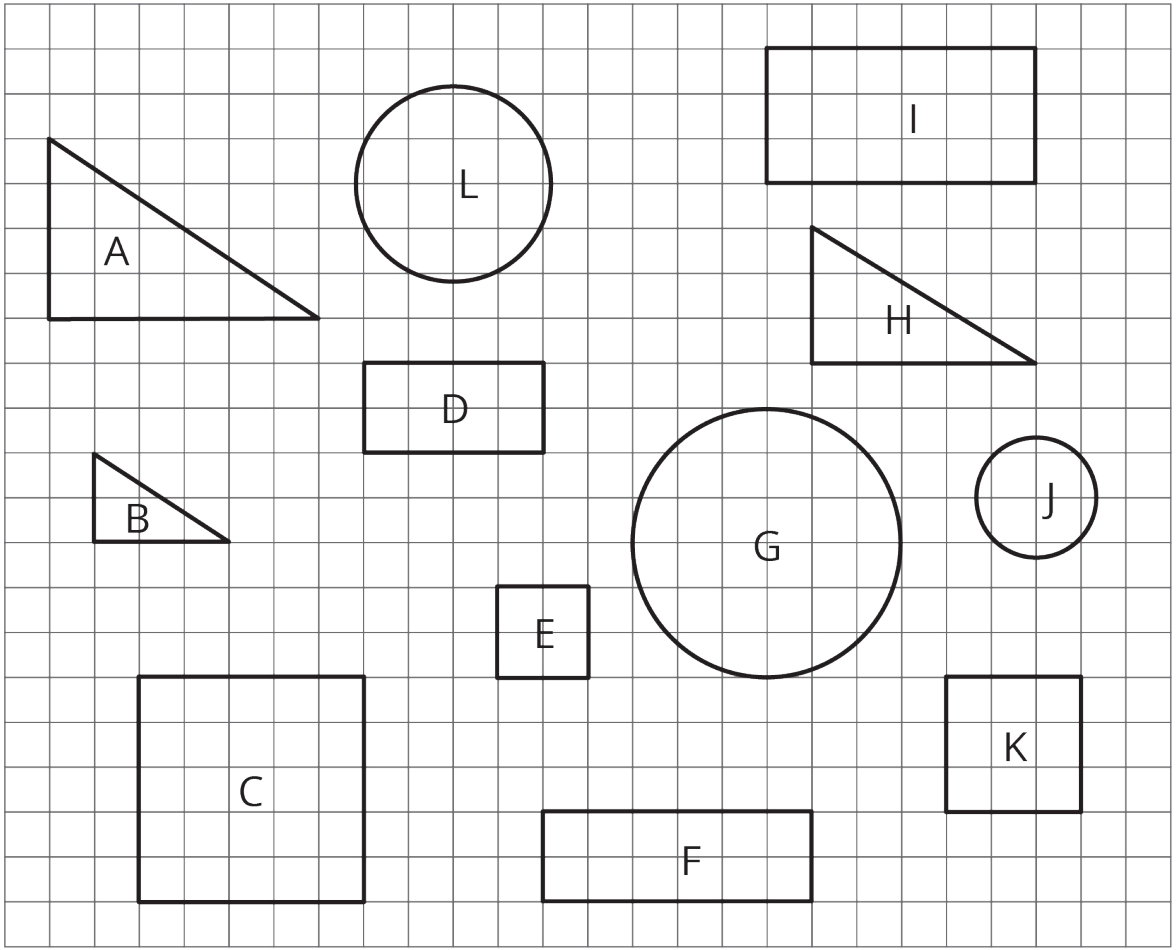
- ❏ I remember how to compute percentages.
- ❏ I can find dimensions on scaled copies of a rectangle.



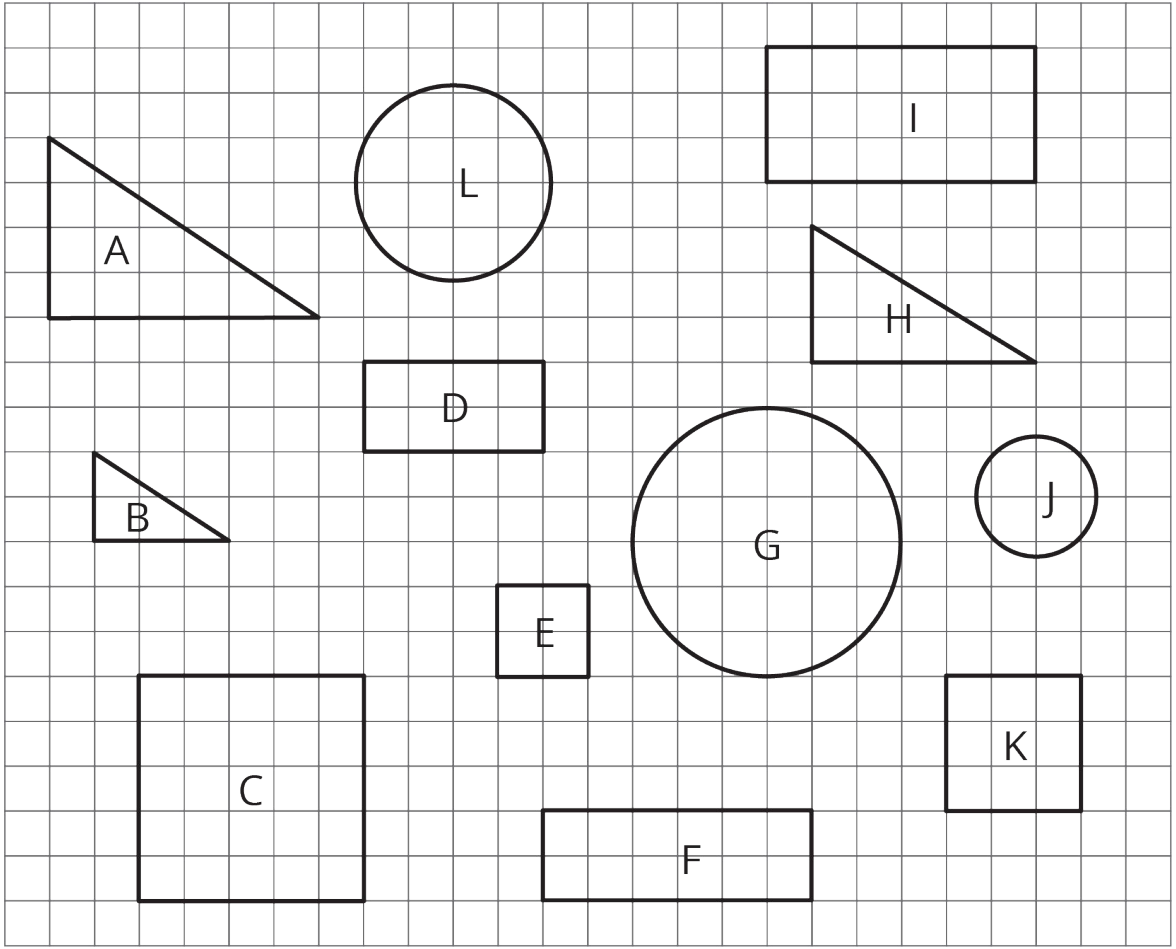
Scaled or Not?

Warm Up

1. Which of the geometric objects are scaled versions of each other?
2. Pick two of the objects that are scaled copies and find the scale factor.



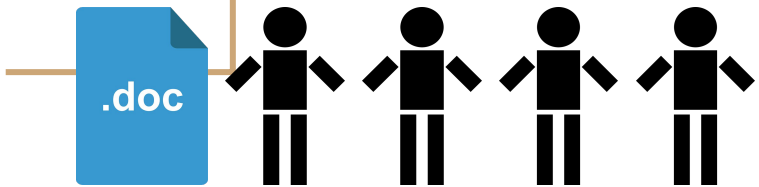
Did you encounter any objects that you initially believed were scaled versions of one another? How did you decide they weren't copies?



Let’s explore the U.S. flag.

Flags are Many Sizes

Activity 1




Let's measure the dimensions of our classroom flag!

The official government flag is the size with a ratio **1:1.9**

...so the width is 1.9 times its height.

Many commercial flags are sold in different ratios.

Does our classroom flag follow the official ratio?

The United States flag is displayed in many different sizes and for different purposes.

One standard size is 19 feet by 10 feet.

What would be a possible use for a flag this size?

One standard size for the flag is 19 ft by 10 ft.

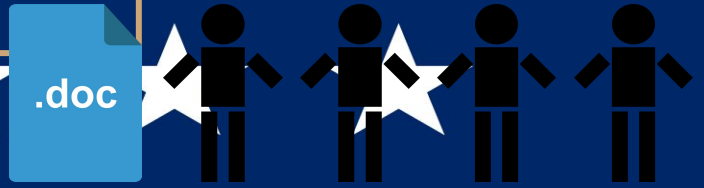
On this flag, the union is $7\frac{5}{8}$ ft by $5\frac{3}{8}$ ft.

Work as a team to complete this activity.

object	height	width	constant of proportionality
standard flag	$5\frac{3}{8}$	$7\frac{5}{8}$	

What Percentage is the Union?

Activity 2




Now, let's consider
the area of the U.S. flag.

On a U.S. flag that is 19 ft by 10 ft, the union is 7 ⅝ ft by 5 ⅜ ft.

For each question, first estimate the answer and then compute the actual percentage.

1. What percentage of the flag is taken up by the union?
2. What percentage of the flag is red? Be prepared to share your reasoning.

On a U.S. flag that is 19 ft by 10 ft, the union is 7 ⅝ ft by 5 ⅜ ft.

What percentage of the flag is taken up by the union?

On a U.S. flag that is 19 ft by 10 ft, the union is 7 ⅝ ft by 5 ⅜ ft.

What percentage of the flag is red?

“Are you ready for more?”

The largest U.S. flag in the world is 225 feet by 505 feet.

1. Is the ratio of the length to the width equivalent to 1 : 1.9, the ratio for official government flags?
2. If a square yard of the flag weighs about 3.8 ounces, how much does the entire flag weigh in pounds?


How can you tell whether two objects are scaled versions of one another?


What properties stay the same when an object is scaled up or down?


What strategies did you use to find the properties of a scaled object?


How did you go about finding the estimated percentage of the total area on the United States flag?

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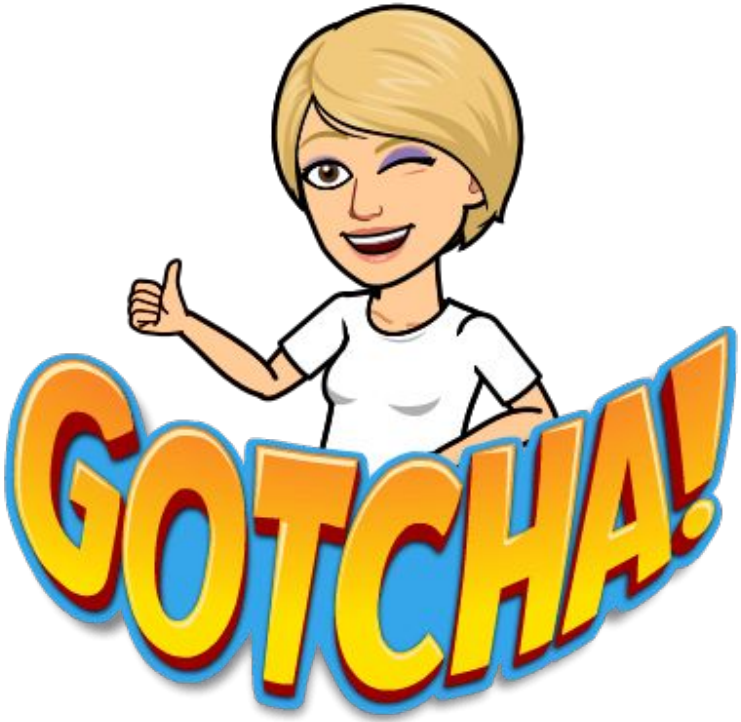

Colorado State Flag

Cool Down

4.01 Cool Down

The side lengths of the state flag of Colorado are in the ratio of 2:3. If a flag is 12 feet long, what is its height?

Practice Problems

A rectangle has a height to width ratio of 3 : 4.5.

Give two examples of dimensions for rectangles that could be scaled versions of this rectangle.

One rectangle measures 2 units by 7 units.

A second rectangle measures 11 units by 37 units.

Are these two figures scaled versions of each other? If so, find the scale factor. If not, briefly explain why.