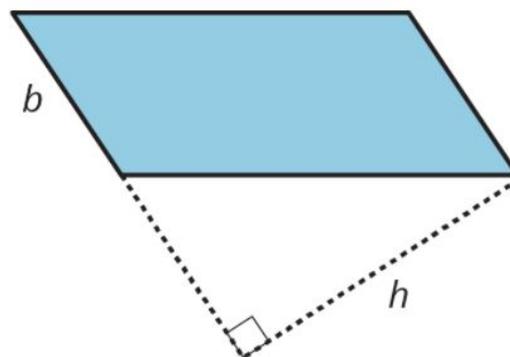
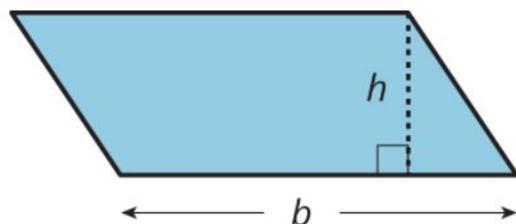


# 1-7: Learning Goals

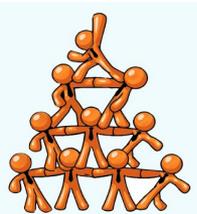
- Let's compare parallelograms and triangles.

# 1-7-1: Same Parallelograms, Different Bases

Here are two copies of a parallelogram. Each copy has one side labeled as the base  $b$  and a segment drawn for its corresponding height and labeled  $h$ .



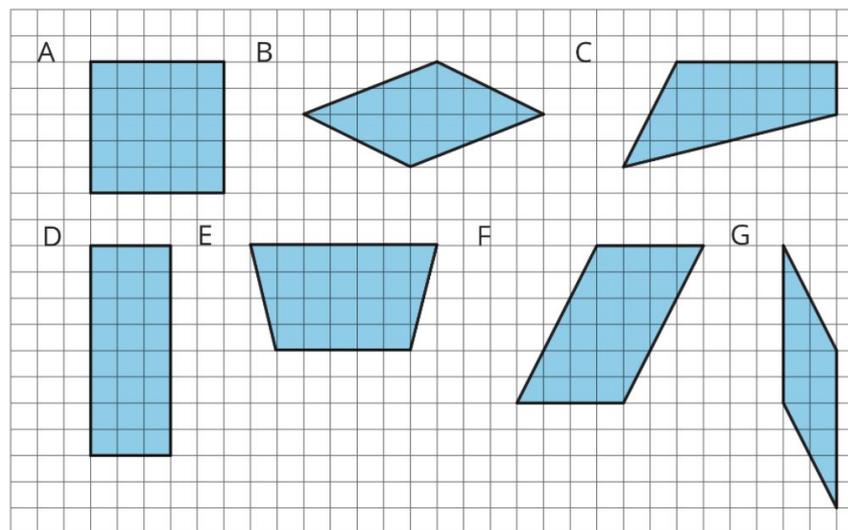
1. The base of the parallelogram on the left is 2.4 centimeters; its corresponding height is 1 centimeter. Find its area in square centimeters.
2. The height of the parallelogram on the right is 2 centimeters. How long is the base of that parallelogram? Explain your reasoning.



# 1-7-2: A Tale of Two Triangles, Part 1

Two polygons are identical if they match up exactly when placed one on top of the other.

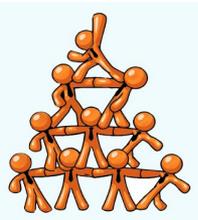
1. Draw *one* line to decompose each of the following polygons into two identical triangles, if possible. Use a straightedge to draw your line.



2. Which quadrilaterals can be decomposed into two identical triangles?

Pause here for a small-group discussion.

3. Study the quadrilaterals that can, in fact, be decomposed into two identical triangles. What do you notice about them? Write a couple of observations about what these quadrilaterals have in common.



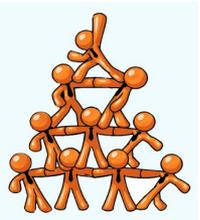
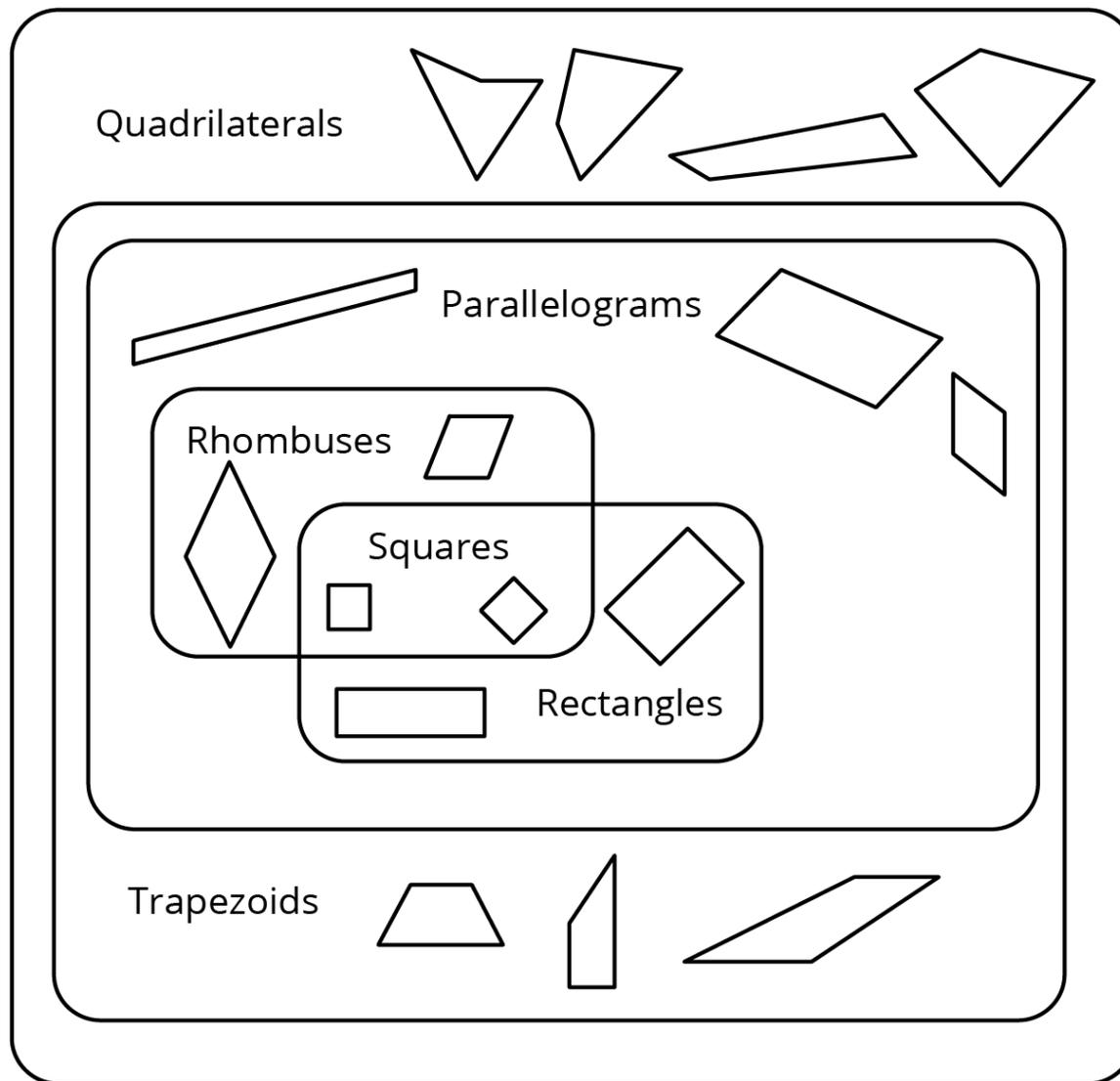
# 1-7-3: A Tale of Two Triangles, Part 2

Your teacher will give your group several pairs of triangles. Each group member should take 1–2 pairs.

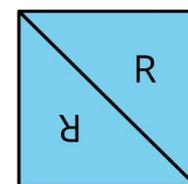
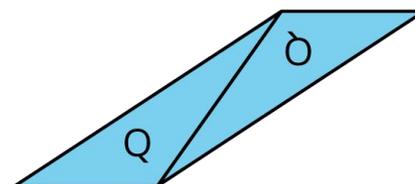
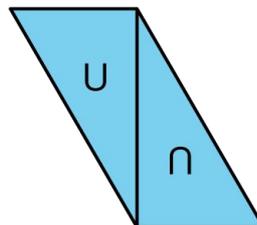
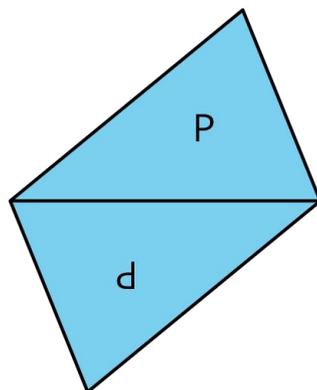
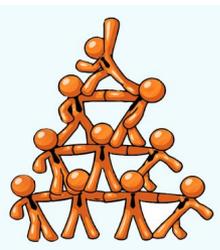
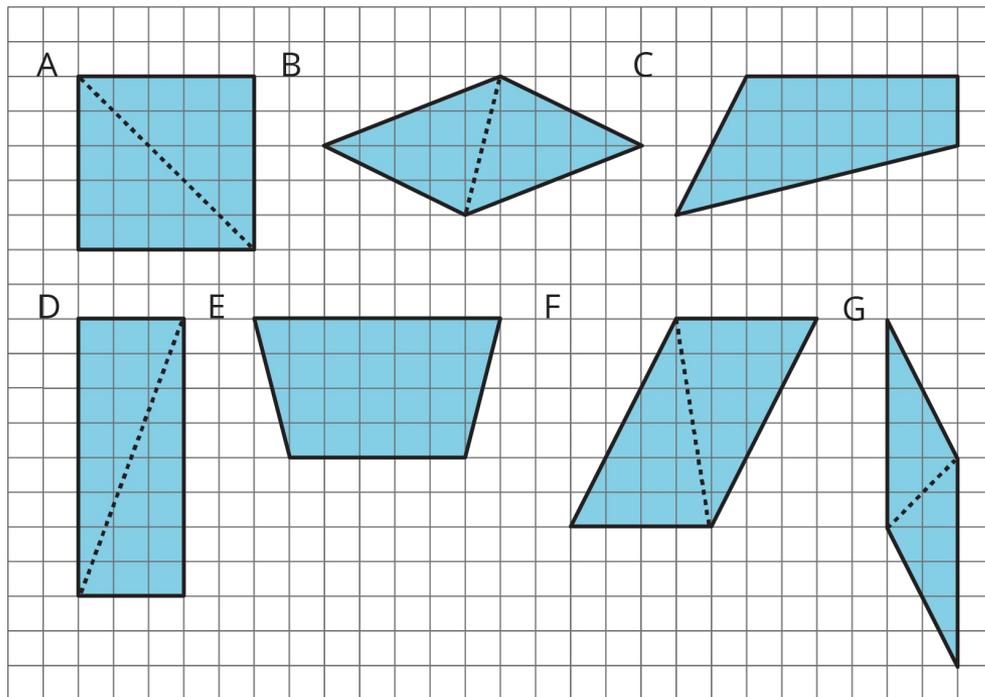
1.
  - a. Which pair(s) of triangles do you have?
  - b. Can each pair be composed into a rectangle? A parallelogram?
2. Discuss with your group your responses to the first question. Then, complete each of the following statements with *all*, *some*, or *none*. Sketch 1–2 examples to illustrate each completed statement.
  - a. \_\_\_\_\_ of these pairs of identical triangles can be composed into a *rectangle*.
  - b. \_\_\_\_\_ of these pairs of identical triangles can be composed into a *parallelogram*.



# 1-7-3: A Tale of Two Triangles, Part 2



# 1-7: Lesson Synthesis



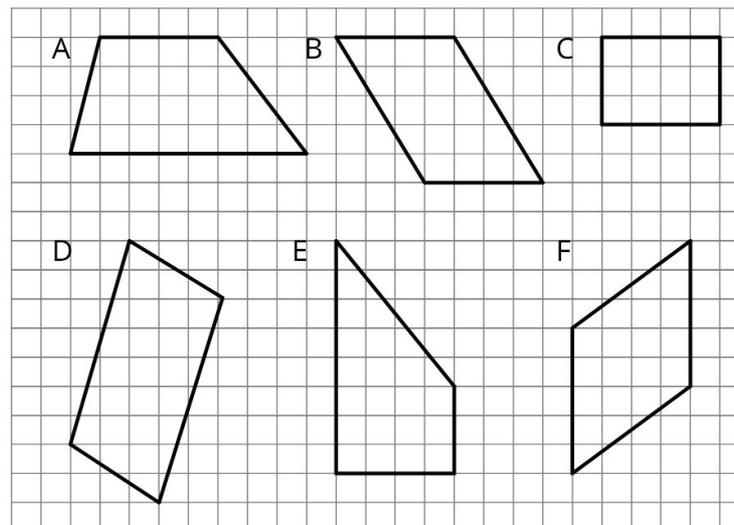
# 1-7: Learning Targets

- I can explain the special relationship between a pair of identical triangles and a parallelogram.



# 1-7-4: A Tale of Two Triangles (Part 3)

1. Here are some quadrilaterals.



- Circle all quadrilaterals that you think can be decomposed into two identical triangles using only one line.
- What characteristics do the quadrilaterals that you circled have in common?

2. Here is a right triangle. Show or briefly describe how two copies of it can be composed into a parallelogram.

