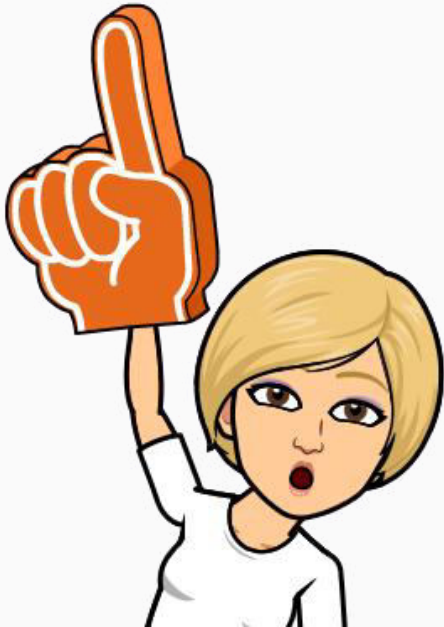# Today's Materials

- **calculator**
- **pencil**
- **notebook**
- **glue**

Bellwork: Use a protractor to measure the angles.

The Size of the Scale Factor

Lesson 5

CCSS Standards: Building on	• 5.NBT.B.6 • 5.NF.B.4 • 5.NF.B.5 • 6.NS.A.1
CCSS Standards: Addressing	• 7.G.A.1
CCSS Standards: Building towards	• 7.RP.A.2

What does it mean when a number and a variable are placed right next to each other in an equation?

5m

Number Talk:
Missing Factor

Warm Up 5.1
- Number Talk

- One problem will be displayed at a time.

- Give me the signal as you think of answers and strategies.

- We will share out as many strategies as we can!

Solve each equation mentally. Find x.

$16x = 176$

$16x = 8$

$16x = 1$

$\dfrac{1}{5}x = 1$

$\dfrac{2}{5}x = 1$

Multiplying by a fraction less than 1 results in a product that is less than one of the factor.
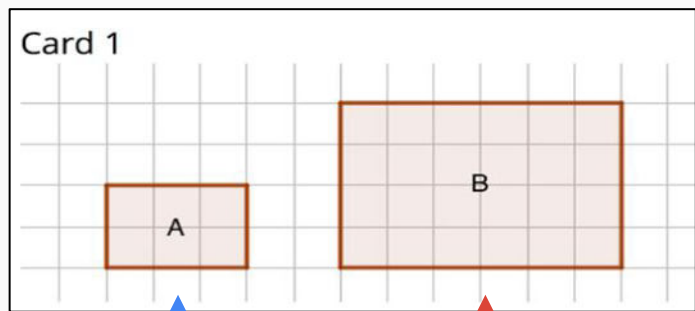
Two factors that multiply to be 1 are reciprocals.

Scaled Copies Card Sort

Activity 5.2
- 5 Practices

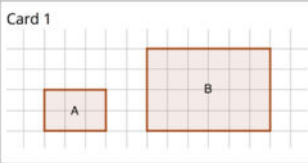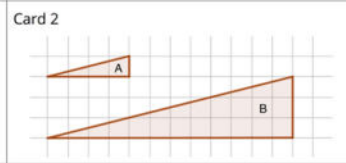On each card, Figure A is the original, and figure B is a scaled copy.

Card 1

A

B

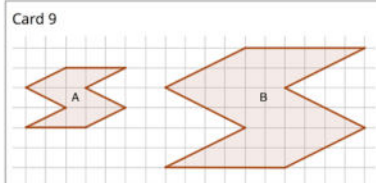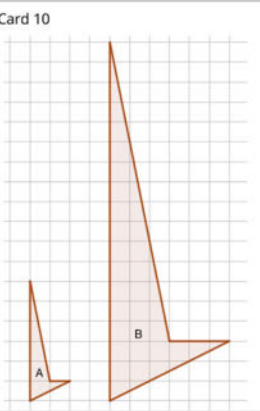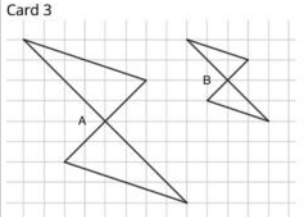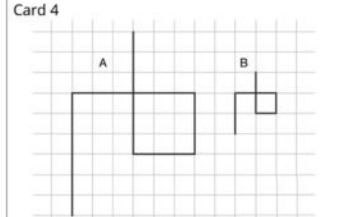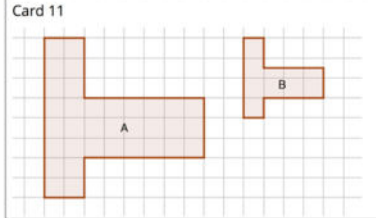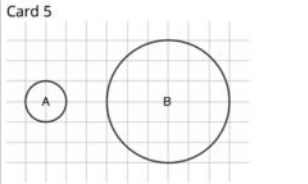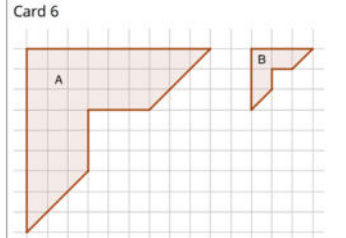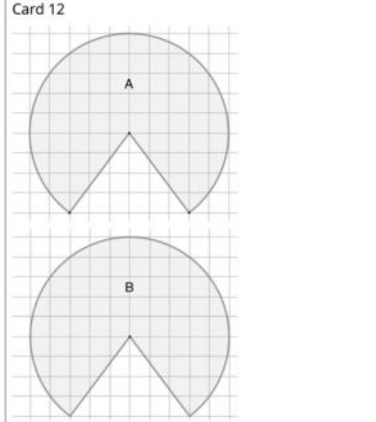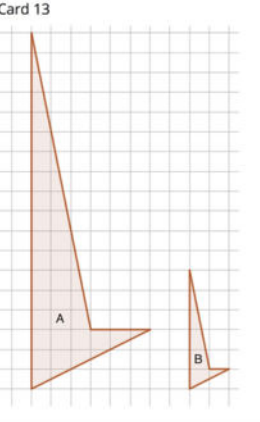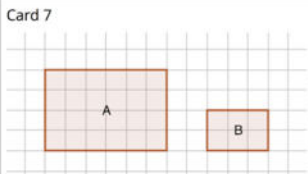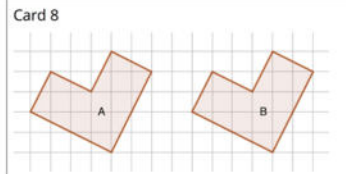**original**   **copy**

1. Sort the cards based on their scale factors. Be prepared to explain your reasoning.

2. Examine cards 10 and 13 more closely. What do you notice about the shapes and sizes of the figures? What do you notice about the scale factors?

3. Examine cards 8 and 12 more closely. What do you notice about the figures and scale factors?

How did your group sort the polygons?

Which card has a scale factor that is...

- exactly one?

- more than one?

- less than one?
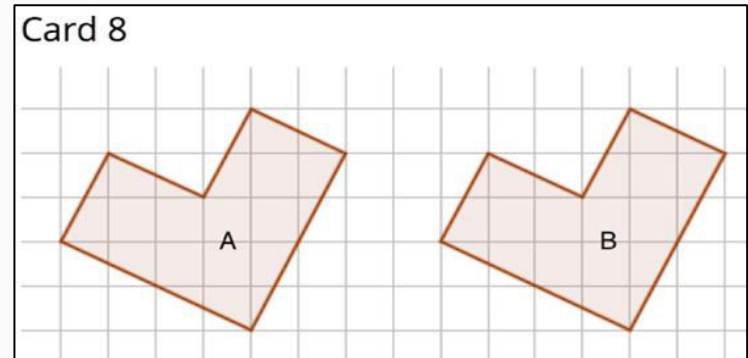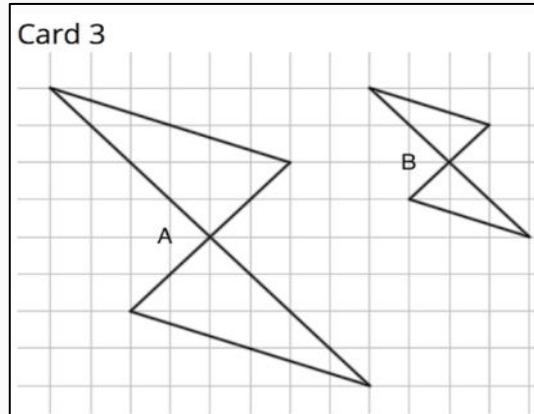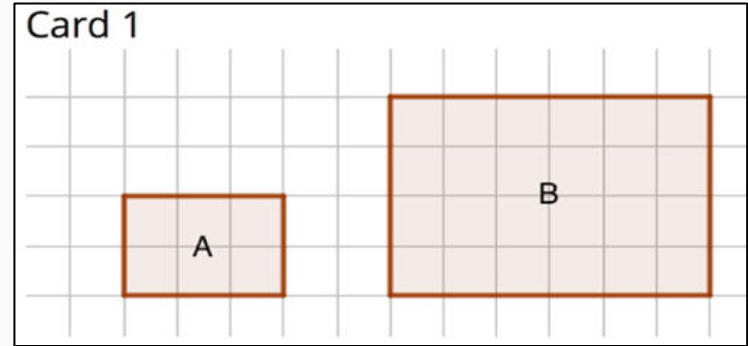
Card 2
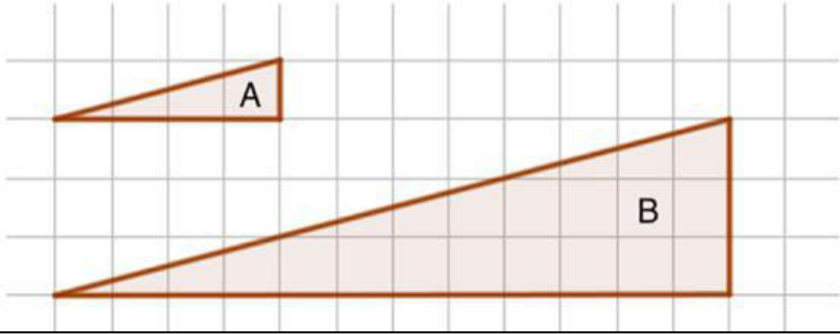
If the scale factor from A to B is 3, what is the scale factor from B to A?

Card 7
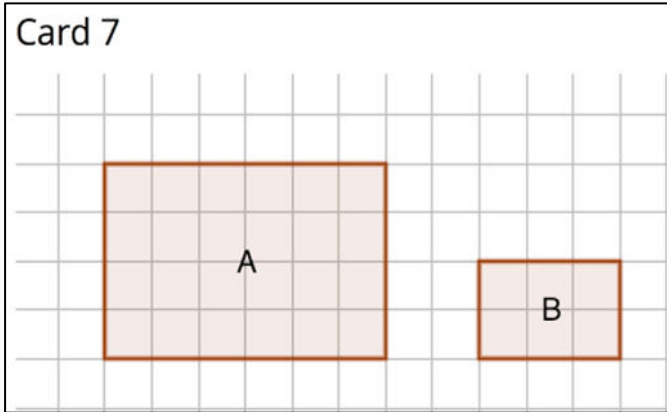
If the scale factor from A to B is ½, what is the scale factor from B to A?

Scaling A Puzzle

(Optional)

Activity 5.3
- Groups of 3

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responsible for 2 pieces of your group's puzzle.

If you drew scaled copies of your puzzle pieces using a scale factor of ½, would they be larger or smaller than the original pieces? How do you know?

Assign each group member a different letter:

A B C

Teammate A: pieces 1 & 5

Teammate B: pieces 2 & 6

Teammate C: pieces 3 & 4

1. Create a scaled copy of each puzzle piece on a blank square, with a scale factor of ½.

2. When you teammates finish, put together the <u>original</u> puzzle and then <u>your puzzle</u> pieces.

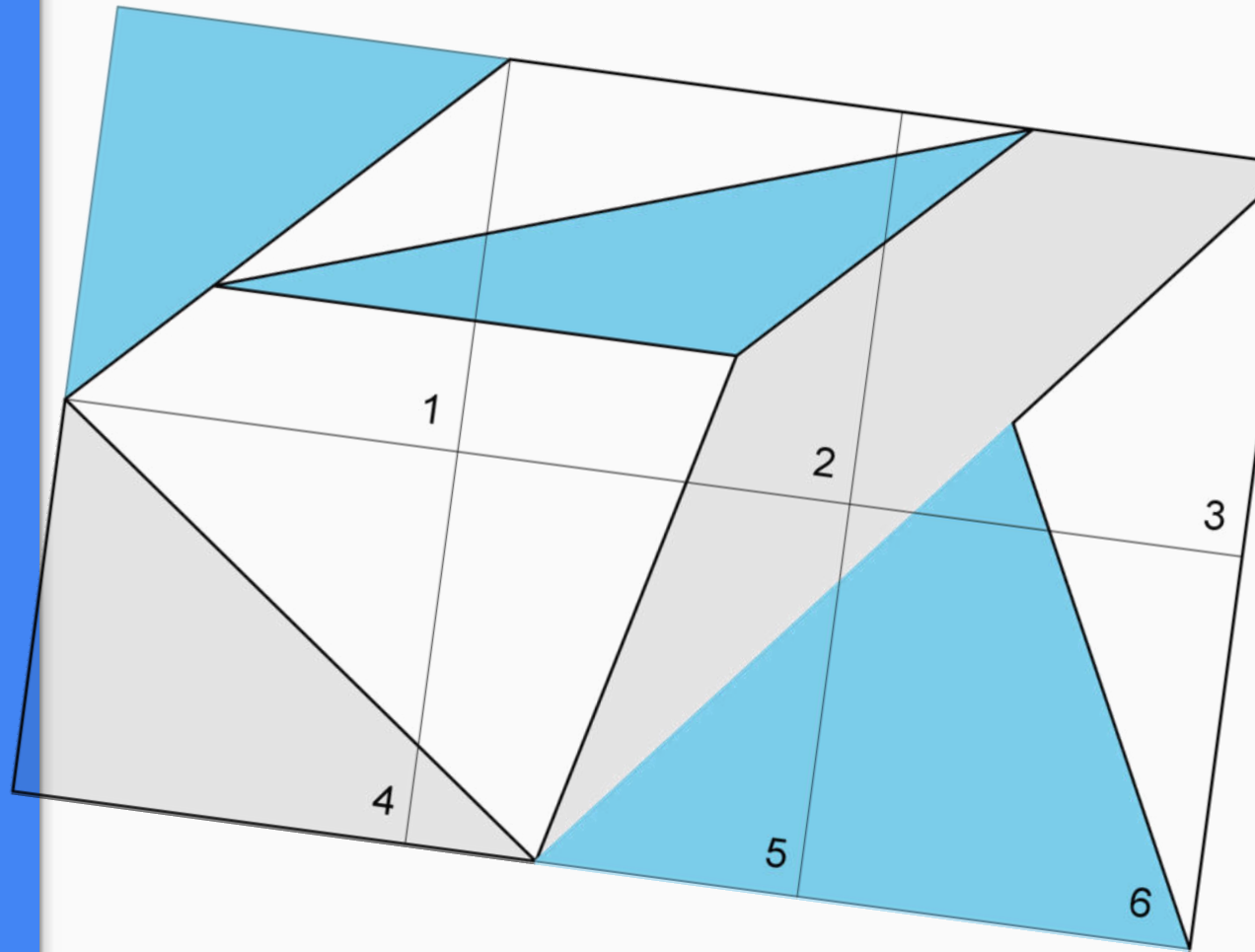| 1	2	3
4	5	6

3. Compare the puzzles.

4. Make revisions to incorrect work.

Reflect: If you lost a puzzle piece in the original puzzle, but still had the scaled copy, how could you recreate the lost piece?

"Scaling a Puzzle" Discussion

- How is this task more challenging than creating scaled copies of polygons on a grid?

- Besides the distances or lengths, what helped you create an accurate copy?

- How did you know or decide which distances to measure?

- Before your drawings were put together, how did you check to see if they were correct?

Missing Figure, Factor, or Copy
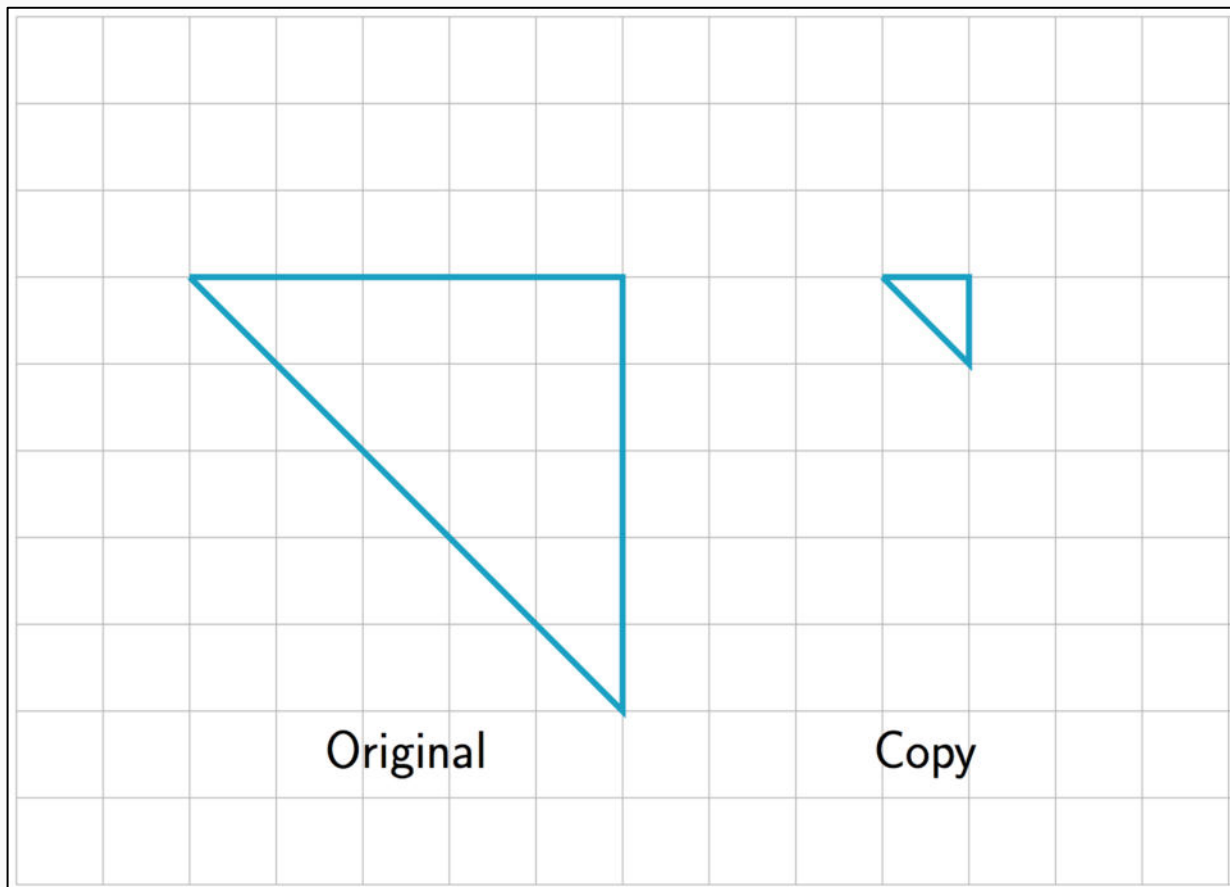
(optional)

Activity 5.4
- Think Pair Share
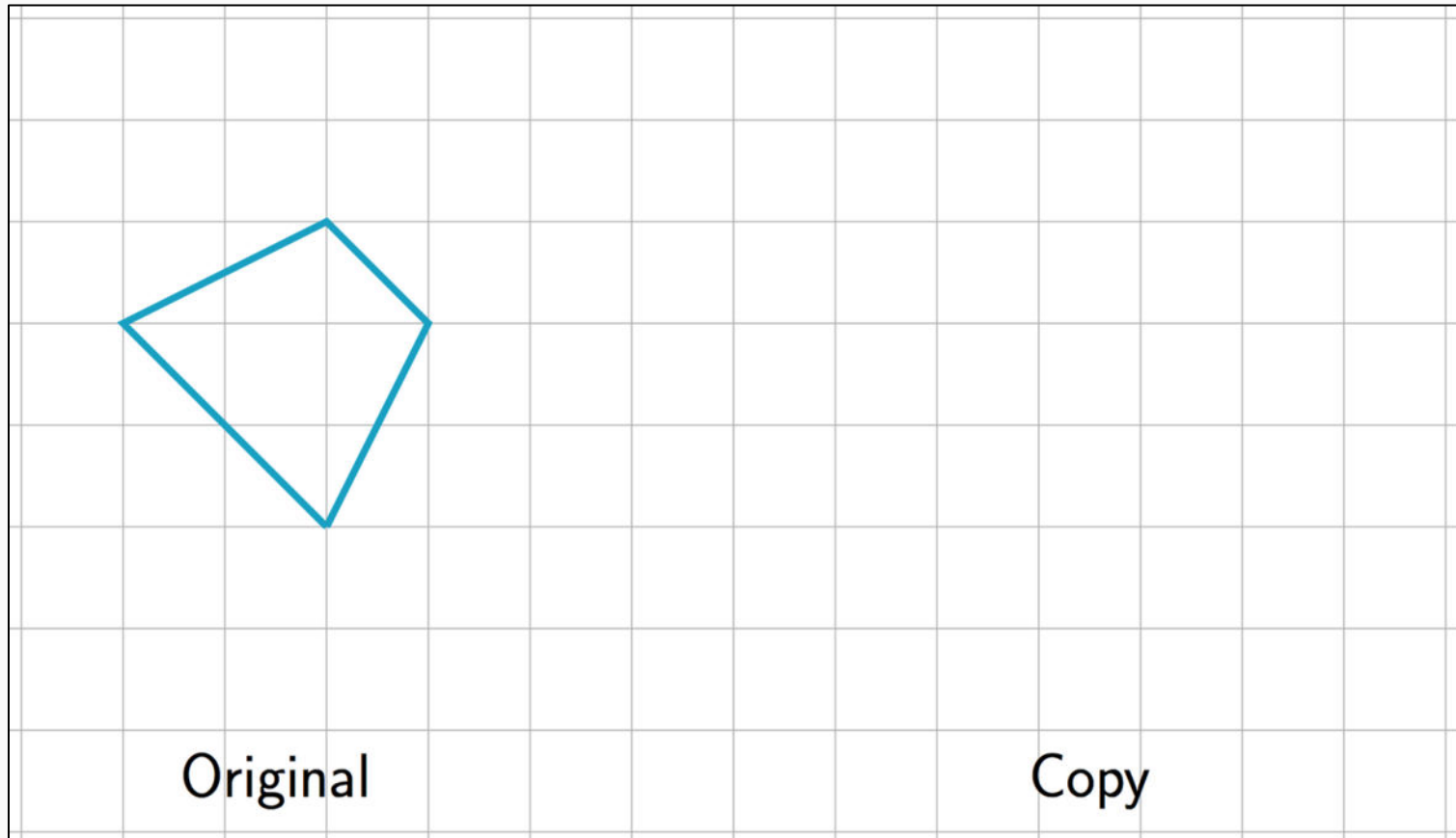
Begin with Quiet Work Time. (4 min.)

Discuss your answers as a team.

What is the scale factor from the original triangle to its copy?

Original

Copy

The scale factor from the original trapezoid to its copy is 2.

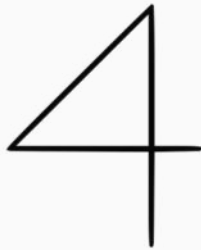Original   Copy

The scale factor from the original figure to its copy is 3/2.
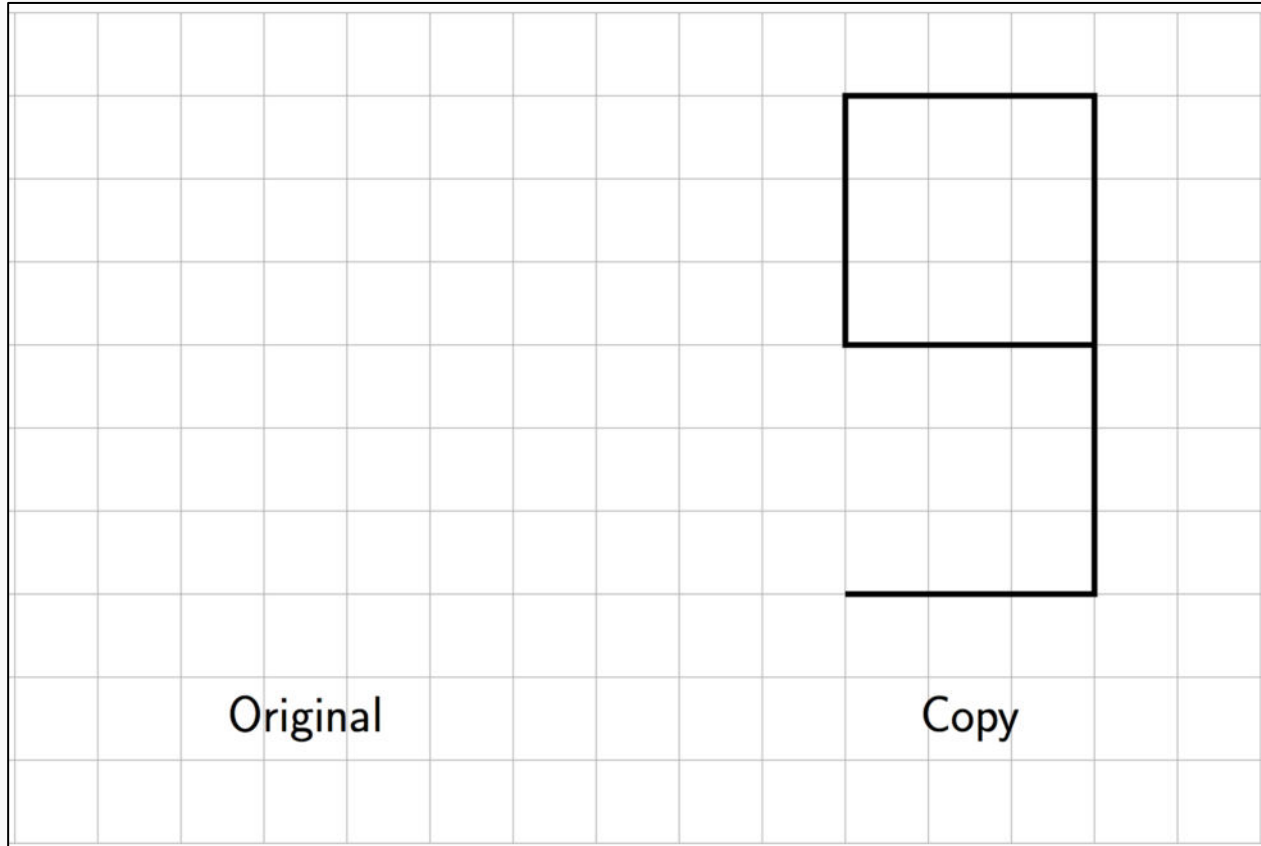
Original

Copy
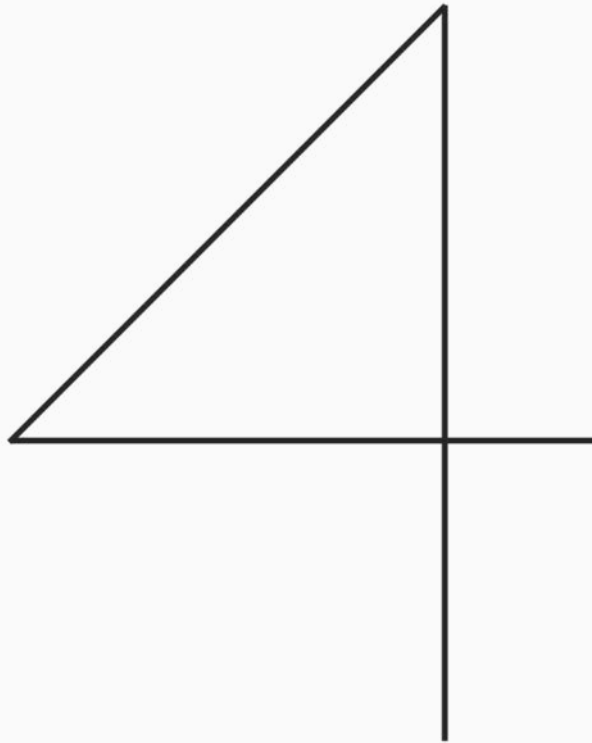
Which of the first 4 problems was the most challenging? Why?

How did you use the segment lengths and angles of the original figure?

Original

Copy

What happens to the copy when it is created with a scale factor <u>greater than one</u>?
<u>less than one</u>?
<u>exactly one</u>?

How can we reverse the scaling to get back to the original figure when we have a scaled copy?

Important Takeaways

★ When the scale factor is…

  ○ greater than 1, the scaled copy is **larger** than the original.

  ○ less than 1, the scaled copy is **smaller** than the original.

  ○ exactly than 1, the scaled copy the **same size**.

★ Scaling can be reversed by using reciprocal factors.

Today's #GOALS

❏ I can describe the effect on a scaled copy when I use a scale factor that is greater than 1, less than 1, or equal to 1.

❏ I can explain how the scale factor that takes Figure A to its copy Figure B is related to the scale factor that takes Figure B to Figure A.

Scaling a Rectangle

Cool Down

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