

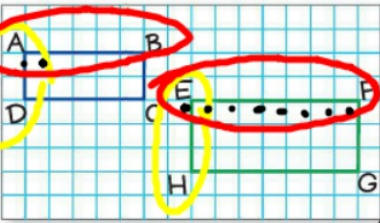
similar to the original?

Guided Practice



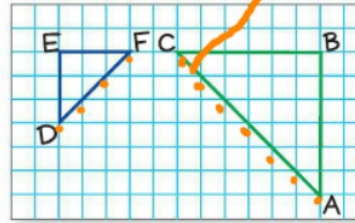
Determine if the two figures are similar by using transformations. Explain your reasoning. (Examples 1 and 2)

1.



now say ork.

all equal ...
DE || EF || FH || HA
DC || CE || EG || GH
DE = EF = FH = HA
DC = CE = EG = GH



Similar

DE || EF || FH || HA
DC || CE || EG || GH

scale factor
all equal
= 2
= 2

3. A T-shirt iron-on measure 2 inches by 1 inch. It is enlarged by a scale

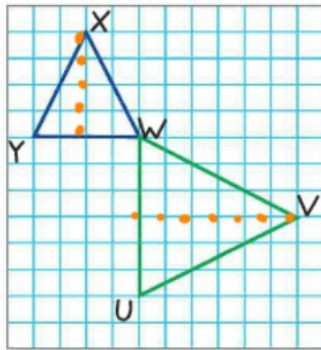
factor of 3 for the back of the shirt. The scale factor of 3 for the front of the shirt.



Determine if the two figures are similar by using transformations.

Explain your reasoning. (Examples 1 and 2)

1

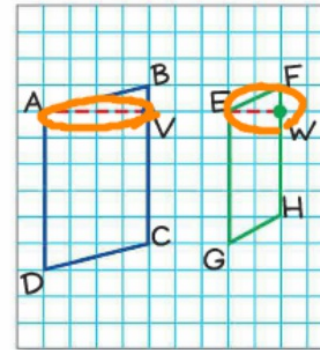


9/5

Show your work.

yes; Sample answer: A rotation, a translation of 4 units down, and a dilation with a scale factor of $\frac{3}{2}$ maps $\triangle XYZ$ onto $\triangle VUW$.

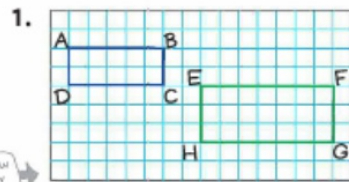
2.



no; Sample answer:

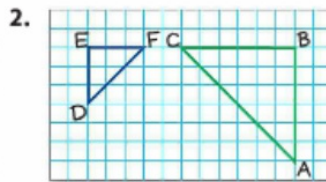
$$\frac{AD}{EG} = \frac{6}{5} \text{ and } \frac{AV}{EW} = \frac{4}{2} \cdot \frac{6}{5} \neq \frac{4}{2}$$

Determine if the two figures are similar by using transformations. Explain your reasoning. (Examples 1 and 2)




Show your work.

no; Sample answer: The ratios of the side lengths are not equal for all of the sides; $\frac{EH}{AD} = \frac{3}{2}$, while $\frac{EF}{AB} = \frac{7}{5}$.



yes; Sample answer: A reflection and a dilation with a scale factor of $\frac{1}{2}$ maps $\triangle CBA$ onto $\triangle FED$.

3. A T-shirt iron-on measures 2 inches by 1 inch. It is enlarged by a scale factor of 3 for the back of the shirt. The second iron-on is enlarged by a scale factor of 2 for the front of the shirt. What are the dimensions of the largest iron-on? Are both of the enlarged iron-ons similar to the original? (Example 3) 12 in. by 6 in.; yes

4.  **Building on the Essential Question** What is the difference between using transformations to create similar figures versus using transformations to create congruent figures?

Sample answer: A dilation with a scale factor that is not equal to one is always used to create similar figures while it is never used to create congruent figures.

Rate Yourself!

How confident are you about similar figures? Shade the ring on the target.



For more help, go online to access a Personal Tutor.



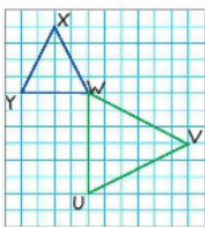
Independent Practice

Go online for Step-by-Step

Determine if the two figures are similar by using transformations.

Explain your reasoning. (Examples 1 and 2)

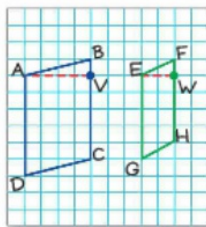
1



Show your work.

yes; Sample answer: A rotation, a translation of 4 units down, and a dilation with a scale factor of $\frac{3}{2}$ maps $\triangle XYW$ onto $\triangle VUW$.

2.

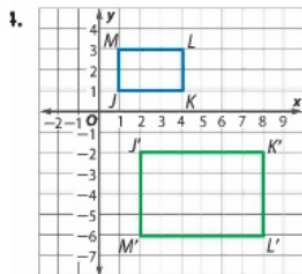


no; Sample answer:

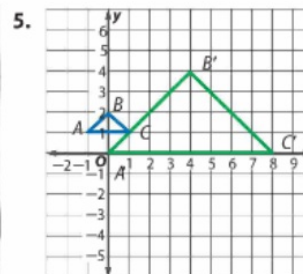
$$\frac{AD}{EG} = \frac{6}{5} \text{ and } \frac{AV}{EW} = \frac{4}{2} \cdot \frac{6}{5} \neq \frac{4}{2}$$

- 3 Felisa is creating a scrapbook of her family. A photo of her grandmother measures 3 inches by 5 inches. She enlarges it by a scale factor of 1.5 to place in the scrapbook. Then she enlarges the second photo by a scale factor of 1.5 to place on the cover of the scrapbook. What are the dimensions of the photo for the cover of the scrapbook? Are all of the photos similar? (Example 3) **6.75 in. by 11.25 in.; yes**

Persevere with Problems Each preimage and image are similar. Describe a sequence of transformations that maps the preimage onto the image.



Sample answer: reflection over the x-axis followed by a dilation with a scale factor of 2



Sample answer: translation of 1 unit to the right and 1 unit down followed by a dilation with a scale factor of 4

6. **CCSS Identify Structure** Use the graphic organizer to compare and contrast similar and congruent figures. **Sample answers are given.**

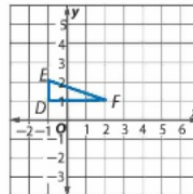
	Similar Figures	Congruent Figures
Side Measures	usually different	always the same
Angle Measures	always the same	always the same
Transformations Used	always a dilation, may use rotation, reflection, or translation	always use rotation, reflection, or translation, never use a dilation

H.O.T. Problems Higher Order Thinking

7. **CCSS Persevere with Problems** Using at least one dilation, describe a series of transformations where the image is congruent to the preimage.

See students' work; product of dilation(s) should equal 1.

8. **CCSS Model with Mathematics** The image of $\triangle DEF$ after two transformations has vertices at $D'(3, 3)$, $E'(6, 3)$ and $F'(3, -6)$. If the two triangles are similar, determine what two transformations map $\triangle DEF$ onto $\triangle D'E'F'$.



Sample answer: 90° clockwise rotation about the origin

followed by a dilation with a scale factor of 3

9. **CCSS Construct an Argument** *True or false.* If a dilation is in a composition of transformations, the order in which you perform the composition does not matter. Explain your reasoning.

false; Sample answer: If you perform the dilation after a translation,

the translation is multiplied by the same scale factor.

10. **CCSS Model with Mathematics** Trapezoid $ABCD$ is shown at the right. Perform a series of transformations on the trapezoid and draw the image on the coordinate plane. List the transformations used below. **See students' work.**

