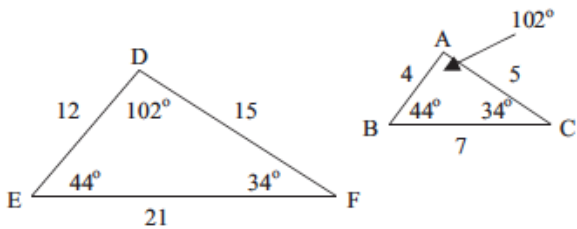


## P.S. #6.7 - Similarity vs. Congruence

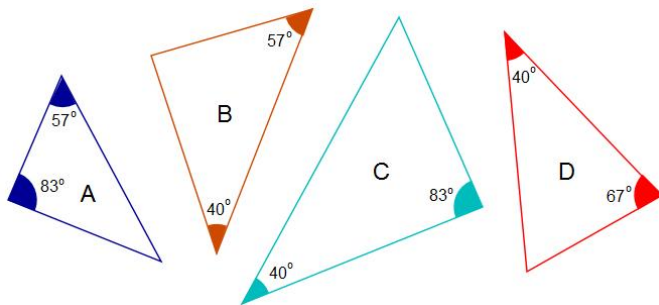
Name: \_\_\_\_\_ Class: \_\_\_\_\_

- 1.) What are two requirements of similar figures?
  
- 2.) Explain why you can conclude that if two figures are congruent, they are also similar.

Use the triangles below to answer the following questions.



- 3.) Which angle corresponds to  $\angle A$ ? \_\_\_\_\_
- 4.) Which angle corresponds to  $\angle B$ ? \_\_\_\_\_
- 5.) Which angle corresponds to  $\angle C$ ? \_\_\_\_\_
- 6.) Do each angle and its corresponding angle have the same measurement? \_\_\_\_\_
- 7.) Which side corresponds to  $\overline{AB}$ ? \_\_\_\_\_
- 8.) Which side corresponds to  $\overline{BC}$ ? \_\_\_\_\_
- 9.) Which side corresponds to  $\overline{AC}$ ? \_\_\_\_\_
- 10.) Do each side and its corresponding side have the same measurement? \_\_\_\_\_
- 11.) What is the scale factor of  $\triangle DEF$  to  $\triangle ABC$ ? \_\_\_\_\_
- 12.) Which triangle is **not** similar to the other three? Explain your reasoning.



- 13.) If  $\triangle ABC \sim \triangle DEF$ , find the missing information in the chart below. **Draw a picture of the two triangles.**

$AB = 8$	$m\angle A = 47$	$DE = 4$	$m\angle D = \underline{\hspace{2cm}}$
$BC = 9$	$m\angle B = \underline{\hspace{2cm}}$	$EF = \underline{\hspace{2cm}}$	$m\angle E = \underline{\hspace{2cm}}$
$AC = \underline{\hspace{2cm}}$	$m\angle C = \underline{\hspace{2cm}}$	$DF = 3.5$	$m\angle F = 92$

What is the scale factor?

State whether the figure and image are **congruent** or **similar**.

- 14.) A triangle is rotated  $180^\circ$  about the origin. \_\_\_\_\_
- 15.) A pentagon is translated 1 unit to the left and 5 units up. \_\_\_\_\_
- 16.) A projector dilates a picture by a scale factor of 10, and projects the image on a screen.  
\_\_\_\_\_
- 17.) A cartoon character is reflected in the  $y$ -axis and translated to the right. \_\_\_\_\_
- 18.) A parallelogram is dilated with center  $(-2,4)$  and scale factor 3.5, and rotated  $90^\circ$  clockwise.  
\_\_\_\_\_
- 19.) Draw the dilation of  $\triangle HAT$  by a scale factor of 2.

- a.) State the coordinates of  $\triangle HAT$  and its image.

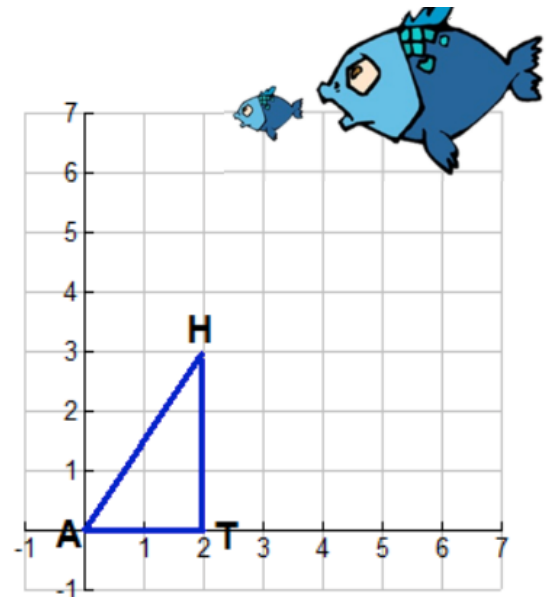
$$H(\underline{\hspace{1cm}}, \underline{\hspace{1cm}}) \quad H'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$$

$$A(\underline{\hspace{1cm}}, \underline{\hspace{1cm}}) \quad A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$$

$$T(\underline{\hspace{1cm}}, \underline{\hspace{1cm}}) \quad T'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$$

- b.) Complete the following side ratios:

$$\frac{H'T'}{HT} = \frac{\square}{\square}; \quad \frac{A'T'}{AT} = \frac{\square}{\square}$$



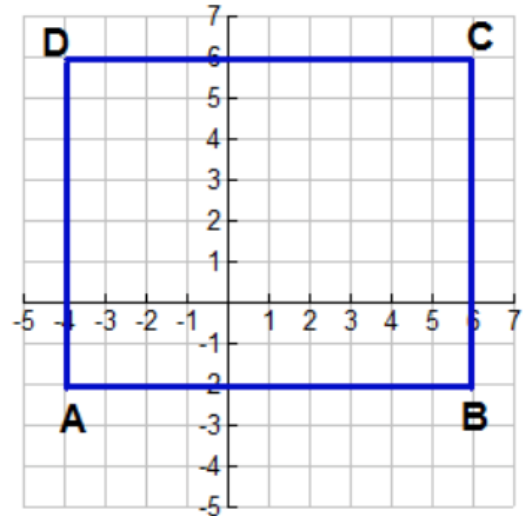
- c.) Is  $\triangle HAT \cong \triangle H'A'T'$ ? \_\_\_\_\_

Explain:

20.) Consider rectangle  $ABCD$  in the accompanying diagram.

- a.) Draw the dilation of rectangle  $ABCD$  by a scale factor of  $\frac{1}{2}$ . State the coordinates of  $ABCD$  and  $A'B'C'D'$ .

$A$ ( \_\_\_\_\_, \_\_\_\_\_ )       $A'$ ( \_\_\_\_\_, \_\_\_\_\_ )  
 $B$ ( \_\_\_\_\_, \_\_\_\_\_ )       $B'$ ( \_\_\_\_\_, \_\_\_\_\_ )  
 $C$ ( \_\_\_\_\_, \_\_\_\_\_ )       $C'$ ( \_\_\_\_\_, \_\_\_\_\_ )  
 $D$ ( \_\_\_\_\_, \_\_\_\_\_ )       $D'$ ( \_\_\_\_\_, \_\_\_\_\_ )



- b.) State the perimeter of  $ABCD$ : \_\_\_\_\_  
 State the perimeter of  $A'B'C'D'$ : \_\_\_\_\_
- c.) How do the perimeters of the two figures compare to the scale factor?

- d.) Find  $m\angle A =$  \_\_\_\_\_;  $m\angle A' =$  \_\_\_\_\_  
 $m\angle D =$  \_\_\_\_\_;  $m\angle D' =$  \_\_\_\_\_

- e.) How do the measures of the angles of the two figures compare?

- f.) What does this tell you about the relationship between rectangle  $ABCD$  and  $A'B'C'D'$ ?

21.) Consider the diagram at the right.

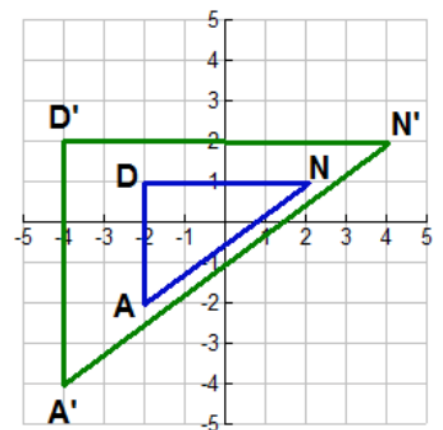
- a.) Is  $\triangle DAN$  similar to  $\triangle D'A'N'$ ? \_\_\_\_\_  
 Explain how you made your decision.

- b.) State the coordinates of both triangles.

$D$ ( \_\_\_\_\_, \_\_\_\_\_ )       $D'$ ( \_\_\_\_\_, \_\_\_\_\_ )  
 $A$ ( \_\_\_\_\_, \_\_\_\_\_ )       $A'$ ( \_\_\_\_\_, \_\_\_\_\_ )  
 $N$ ( \_\_\_\_\_, \_\_\_\_\_ )       $N'$ ( \_\_\_\_\_, \_\_\_\_\_ )

Do the coordinates support your decision in part a?

\_\_\_\_\_ Explain:



- c.) Complete the following side ratios:

$$\frac{D'N'}{DN} = \frac{\square}{\square}; \quad \frac{D'A'}{DA} = \frac{\square}{\square};$$

- d.) What is the scale factor of the dilation from  $\triangle DAN$  to  $\triangle D'A'N'$ ?