LESSON 7.2

NAME _____ DATE _____

Technology Activity

For use with pages 364–371

GOAL **Construct similar triangles and determine a relationship between the corresponding sides of similar triangles.**

Similar figures are an important part of geometry. Many theorems can be proved by using the concept of similarity. In this activity, you will construct similar triangles and then determine a relationship between the corresponding sides of similar triangles.

Activity

1. Draw $\triangle ABC$.
2. Draw a triangle similar to $\triangle ABC$ (using the dilation feature).
3. Measure the angles in each triangle.
4. Measure the sides in each triangle.
5. Compare the ratio of the corresponding sides of the triangles.

Exercises

1. What is true about the ratios of the corresponding sides in similar triangles?

2. For each of the following, determine whether $\triangle ABC$ is similar to $\triangle WXY$.

a. $AB = 6$, $BC = 8$, $AC = 16$ and $WX = 3$, $XY = 4$, $WY = 8$

b. $AB = 3$, $BC = 4$, $AC = 9$ and $WX = 1.5$, $XY = 2$, $WY = 4$

c. $AB = 7$, $BC = 12$, $AC = 20$ and $WX = 21$, $XY = 35$, $WY = 60$

3. $\triangle COB$ is similar to $\triangle TIP$. Find the missing sides for each of the following.

a. $CO = 5$, $TI = 15$, $CB = 11$, and $IP = 23$

b. $CB = 15$, $OB = 12$, $TP = 22.5$, and $TI = 10.5$

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Technology Keystrokes

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TI-92

1. Draw $\triangle ABC$.

F3 3 (Move cursor to desired location.) ENTER A

(Move cursor to desired location.) ENTER B

(Move cursor to desired location.) ENTER C

2. Draw a triangle similar to $\triangle ABC$.

Plot a point not on $\triangle ABC$. F2 1 ENTER

(Move cursor to a blank area of the drawing page.) F7 6 ENTER 2

F5 3 (Move cursor to $\triangle ABC$.) ENTER

(Move cursor to a point not on $\triangle ABC$.) ENTER

(Move cursor to number 2.) ENTER

3. Measure the angles in each triangle.

F6 3 (Move cursor on one side of an angle.) ENTER (Move cursor to the vertex of the desired angle.) ENTER (Move cursor to the second side of the angle.) ENTER

Repeat this process for the other angles.

4. Measure the sides of each triangle.

F6 1 (Move cursor to one endpoint of a side.) ENTER

(Move cursor to the other endpoint of the side.) ENTER

Repeat this process for the other sides.

5. Calculate the ratios of the corresponding sides.

F6 6 (Highlight the desired side length.) ENTER ÷

(Highlight other side length.) ENTER ENTER (The result will appear on the screen.)

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Technology Keystrokes

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SKETCHPAD

1. Draw $\triangle ABC$. Choose the segment tool. Draw $\overline{AB}$, $\overline{BC}$, and $\overline{CA}$ to form $\triangle ABC$.
2. Use the dilation feature to draw $\triangle A'B'C'$. Choose the point tool. Plot a point not on $\triangle ABC$. Choose the selection arrow tool. Select the point. Choose **Mark Center** from the **Transform** menu. Use the selection arrow tool to choose one side of $\triangle ABC$. Hold down the shift key and select all vertices and sides of $\triangle ABC$. Choose **Dilate** from the **Transform** menu. Enter 2 as the new scale factor, enter 1 as the old scale factor, and click OK.
3. Measure the angles in each triangle. Choose the selection arrow tool. Select a vertex of the triangle. Hold down the shift key and select the other two vertices. (The vertex of the angle must be the second point selected.) Choose **Angle** from the **Measure** menu. Repeat this procedure for the other five angles.
4. Measure the sides of each triangle. Choose the selection arrow tool. Select one side of $\triangle ABC$. Hold down the shift key and select the other two sides. Choose **Length** from the **Measure** menu. Select point A'. Hold down the shift key and select point B'. Choose **Distance** from the **Measure** menu. Repeat this procedure for the other two sides of $\triangle A'B'C'$.
5. Calculate the ratios of the corresponding sides of the triangles. Choose **Calculate** from the **Measure** menu. Click the measurement of one side of $\triangle ABC$, /, the measurement of the corresponding side of $\triangle DEF$, and OK. Repeat this procedure for the other two ratios.

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