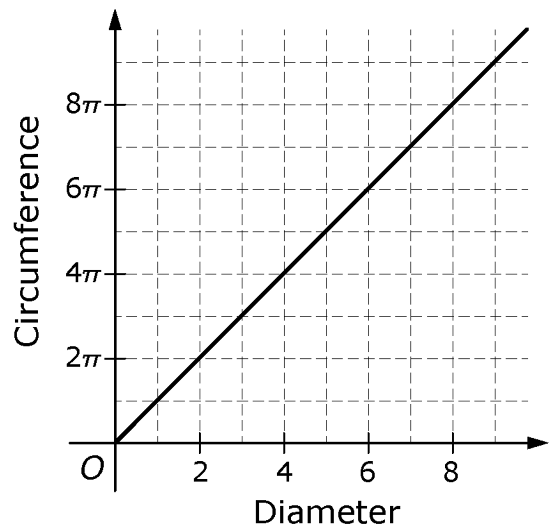
Name ___________________________ Period _______ Date _____________

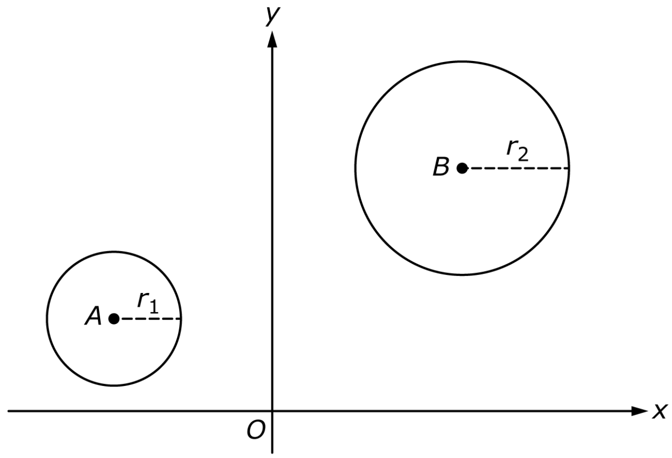
Geometry Unit 2 Model Curriculum Assessment

1. The graph below shows the relationship between the circumference and diameter of circles with various radii.



Explain how the graph suggests that all circles are similar.

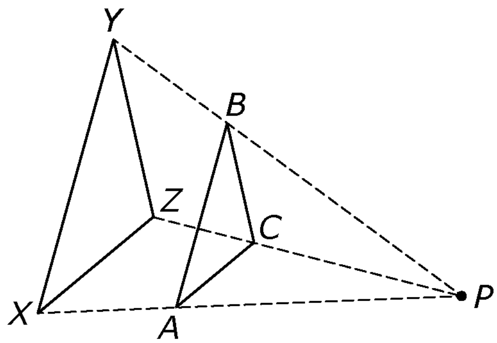
2.



In the coordinate plane, circle A has center A and radius r_1, and circle B has center B and radius r_2. Complete the proof that circle A is similar to circle B by filling in the missing reasons in the table below.

Statements	Reasons
Construct line segment $\overline{AB}$.	
Translate point A and circle A a distance of $\lvert AB \rvert$ in the direction of directed line segment $\overrightarrow{AB}$ to get circle K.	
Circle K is congruent to Circle A under the congruence F, where F is the translation along directed line segment $\overrightarrow{AB}$.	
The center of circle K is B.	
There is a dilation D with center B and scale factor $\frac{r_2}{r_1}$ that maps each point P on circle K to its image point P' on circle B, so that D(circle K) = circle B.	
Circle A is similar to circle B.	

3.

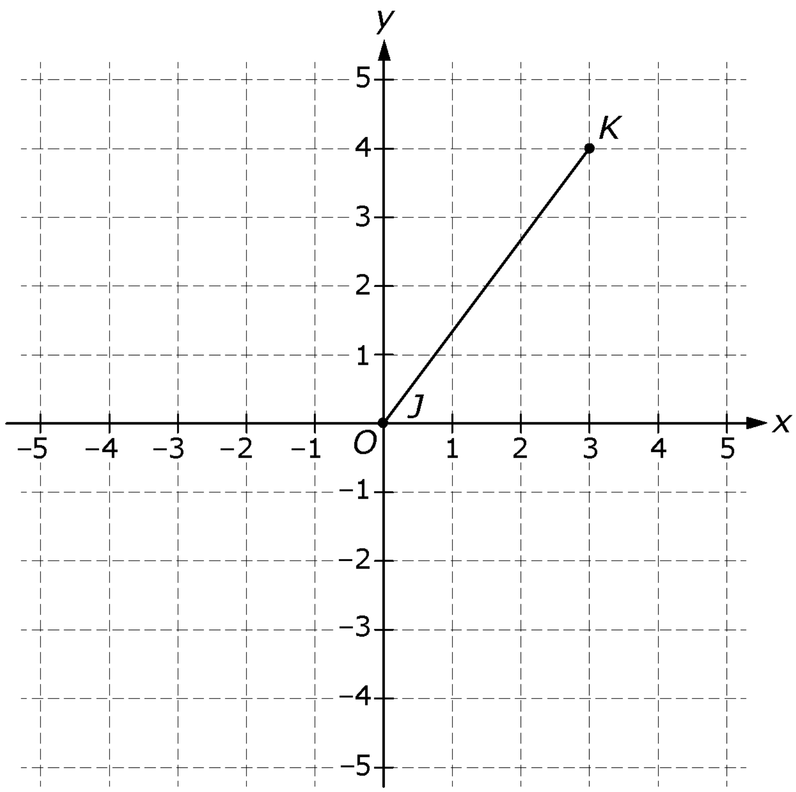


In the figure above, ς XYZ is the image of ς ABC under a dilation with scale factor of 1.5 and center at point P. Explain why $\overline{AC}$ is parallel to $\overline{XZ}$.

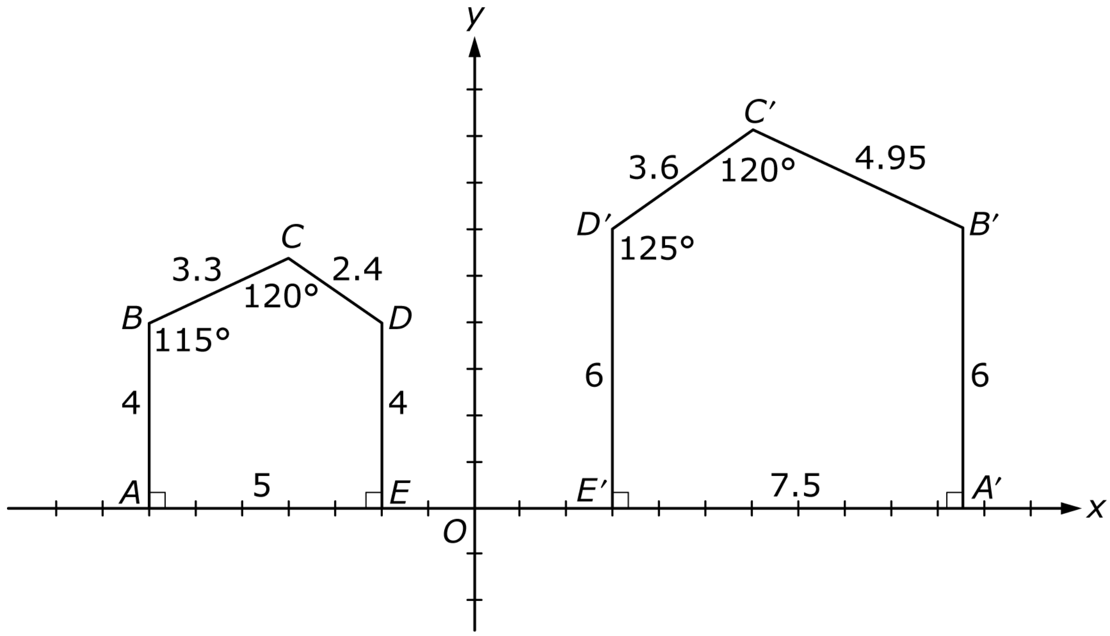
4. Given that ς*FGH* is the image of ς*RST* under a dilation with scale factor $\frac{1}{4}$ and center at point *P*, identify all of the following statements that must be true.

	Must Be True
$\angle F \cong \angle R$	○
$\angle S \cong \angle T$	○
$\overline{GH} \cong \overline{ST}$	○
$\overline{FH}$ Π$\overline{RT}$	○
$\overline{FG} \perp \overline{RS}$	○
$\frac{FG}{GH} = \frac{RS}{ST}$	○
$\frac{GH}{ST} = \frac{HF}{TR}$	○
$\frac{FG}{GH} = \frac{1}{4}$	○
$\frac{FH}{RT} = \frac{1}{4}$	○

5. In the coordinate plane below, $\overline{JK}$ is dilated with a scale factor of x and center at the origin to form $\overline{J'K'}$. Use the Pythagorean Theorem to show that the ratio of $J'K'$ to JK is equal to x, the scale factor of the dilation.

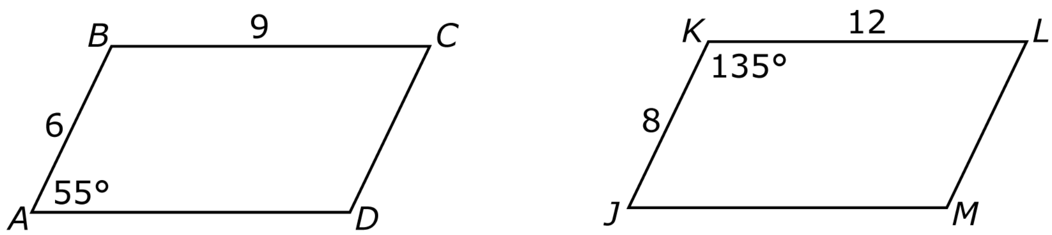


6.



The measures of four of the five angles in each pentagon in the coordinate plane above are given. The sum of the measures of the interior angles of a pentagon is 540°. Are the two pentagons similar? If so, write a valid similarity statement. Justify your answer using transformations.

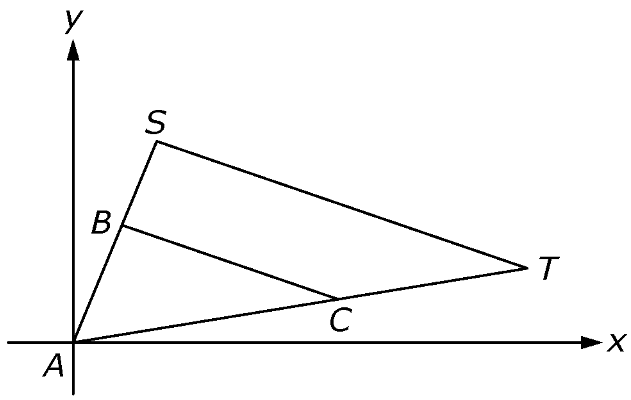
7.



Note: Figures not drawn to scale.

Are the parallelograms *ABCD* and *JKLM* above similar? Justify your answer using transformations.

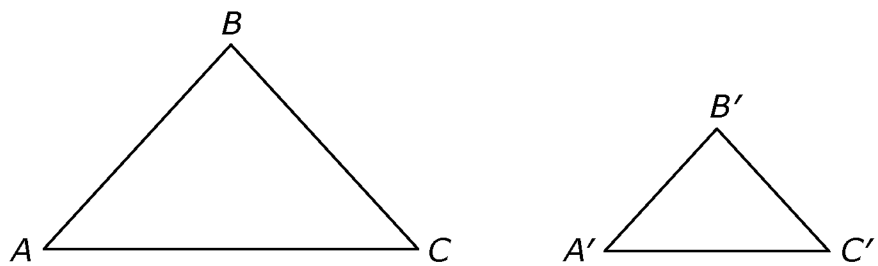
8.



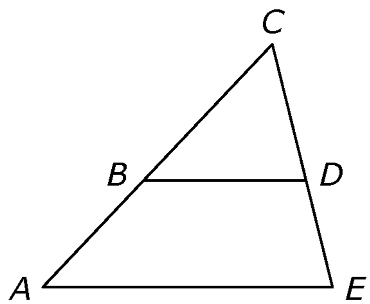
In the coordinate plane above ς *AST* is the image of ς *ABC* under a dilation centered at point *A*. Use the properties of dilations to explain why all the corresponding pairs of angles of the triangles are congruent and why all the lengths of the corresponding pairs of sides of the triangles are proportional.

9. Explain through transformations why the angle-angle criterion (AA) is sufficient to establish similarity in triangles.

10. Using $\varsigma\ ABC$ and $\varsigma\ A'B'C'$ shown below with $\angle A \cong \angle A'$ and $\angle B \cong \angle B'$, explain how the ASA congruence test is applied in proving that $\varsigma\ ABC : \varsigma\ A'B'C'$.



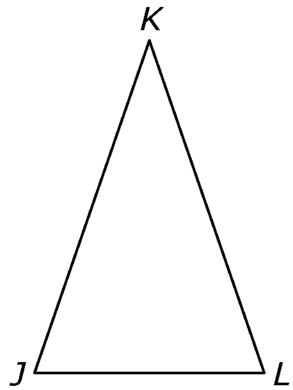
11.



In $\triangle ACE$ above, $\overline{BD} \parallel \overline{AE}$. Complete the proof that $\frac{AB}{BC} = \frac{ED}{DC}$ by providing a reason for each statement provided.

Statements	Reasons
$\overline{BD} \parallel \overline{AE}$	
$\angle ACE \cong \angle BCD$	
$\angle CAE \cong \angle CBD$	
$\triangle ACE \sim \triangle BCD$	
$\frac{AC}{BC} = \frac{EC}{DC}$	
$\frac{AB+BC}{BC} = \frac{ED+DC}{DC}$	
$\frac{AB}{BC} + 1 = \frac{ED}{DC} + 1$	
$\frac{AB}{BC} = \frac{ED}{DC}$	

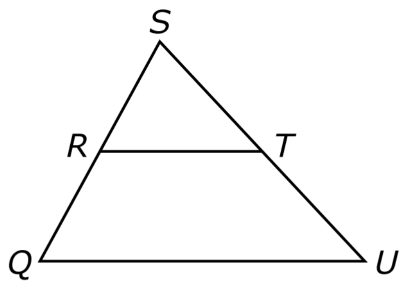
12.



In $\triangle JKL$ above, $\overline{JK} \cong \overline{LK}$. Prove that $\angle J \cong \angle L$. Use as many or as few lines in the table below as necessary.

Statements	Reasons

13.



In $\triangle QSU$ above, point R is the midpoint of $\overline{QS}$, and point T is the midpoint of $\overline{SU}$. Prove that $\overline{RT} \parallel \overline{QU}$. Use as many or as few lines in the table below as necessary.

Statements	Reasons