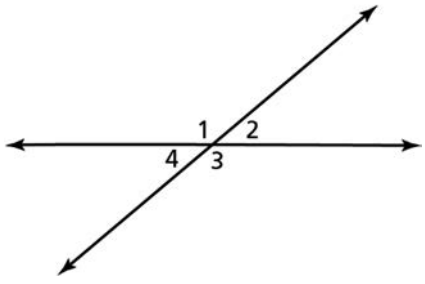
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

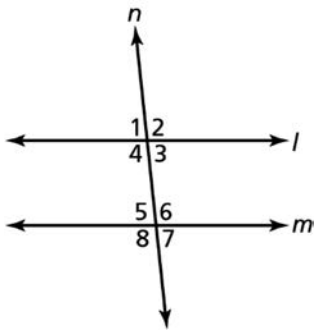
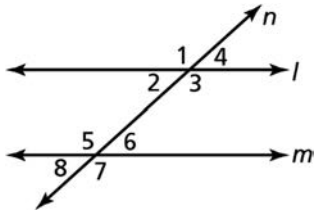
MA.912.GR.1.1 Prove relationships and theorems about lines and angles. Solve mathematical and real-world problems involving postulates, relationships and theorems of lines and angles.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to prove relationships and theorems about lines and angles and solve mathematical and real-world problems involving postulates, relationships and theorems of lines and angles.	Prove that when a transversal crosses parallel lines the alternate interior angles are congruent.
3	**I understand the entire standard.** • Prove relationships and theorems about lines and angles. • Solve mathematical and real-world problems involving postulates, relationships and theorems of lines and angles.	Prove that $\angle 1 \cong \angle 3$. 

Name _____ Date _____

MA.912.GR.1.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Use theorems about lines and angles to solve problems.	$m\angle 1 = 84°$; find the measures of all other angles in the diagram. 
1	**I understand the basic skills needed to begin learning this standard.** • Identify pairs of corresponding, alternate interior, alternate exterior, consecutive interior and vertical angles.	Identify all pairs of angles of each type in the diagram.  **a.** corresponding **b.** alternate interior **c.** alternate exterior **d.** consecutive interior **e.** vertical

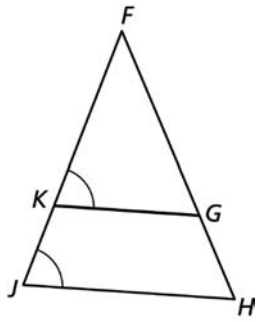
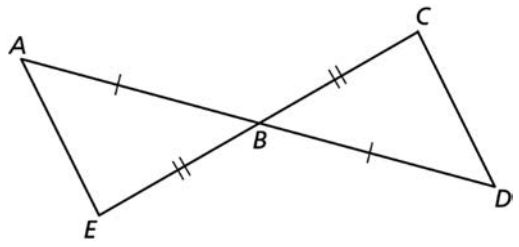
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

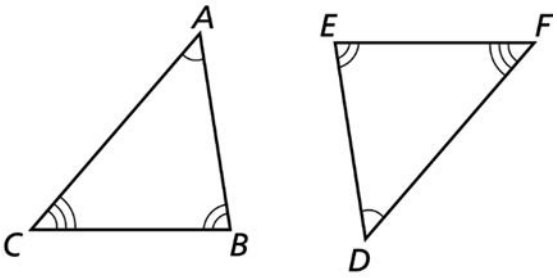
MA.912.GR.1.2 Prove triangle congruence or similarity using Side-Side-Side, Side-Angle-Side, Angle-Side-Angle, Angle-Angle-Side, Angle-Angle and Hypotenuse-Leg.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to prove triangle congruence or similarity using Side-Side-Side, Side-Angle-Side, Angle-Side-Angle, Angle-Angle-Side, Angle-Angle and Hypotenuse-Leg.	Prove that $\triangle FGK$ and $\triangle FHJ$ are similar. 
3	**I understand the entire standard.** • Prove triangle congruence or similarity using Side-Side-Side, Side-Angle-Side, Angle-Side-Angle, Angle-Angle-Side, Angle-Angle and Hypotenuse-Leg.	Prove that $\triangle ABE \cong \triangle DBC$. 

Name _____ Date _____

MA.912.GR.1.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find lengths and angle measures of corresponding parts of similar triangles.	$\triangle ABC$ and $\triangle DEF$ are similar, $m\angle A = 27°$, $AB = 6$, and $BC = 12$. **a.** What is $m\angle D$? **b.** If $DE = 9$, what is *EF*?
1	**I understand the basic skills needed to begin learning this standard.** • Identify corresponding parts of two congruent or similar triangles.	Identify the corresponding parts of $\triangle ABC$ and $\triangle DEF$.  **a.** corresponding angles **b.** corresponding sides

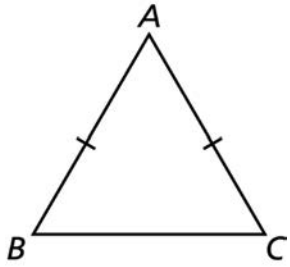
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

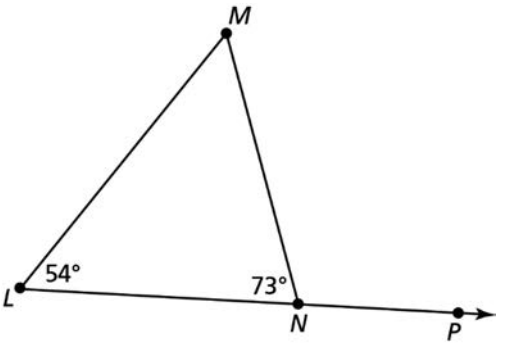
MA.912.GR.1.3 Prove relationships and theorems about triangles. Solve mathematical and real-world problems involving postulates, relationships and theorems of triangles.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to prove relationships and theorems about triangles.	Prove that the segment joining the midpoints of two sides of a triangle is parallel to the third side.
3	**I understand the entire standard.** • Prove relationships and theorems about triangles. Solve mathematical and real-world problems involving postulates, relationships and theorems of triangles.	Prove that $\angle A \cong \angle C$. 

Name _____ Date _____

MA.912.GR.1.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the measures of interior and exterior angles of a triangle.	Find each of the indicated angle measures.  **a.** $m\angle M$ **b.** $m\angle MNP$
1	**I understand the basic skills needed to begin learning this standard.** • Define key terms related to triangles.	Define each of these terms. **a.** exterior angles **b.** base angles of an isosceles triangle **c.** midpoint **d.** median of a triangle

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

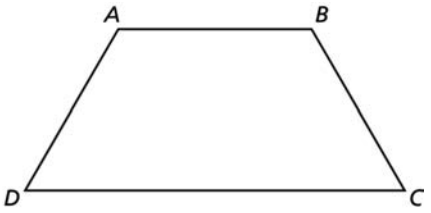
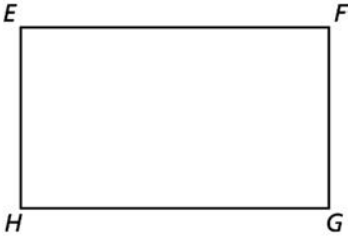
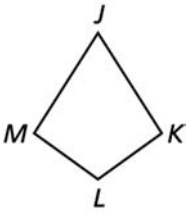
MA.912.GR.1.4 Prove relationships and theorems about parallelograms. Solve mathematical and real-world problems involving postulates, relationships and theorems of parallelograms.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Write a word problem involving postulates, relationships, and theorems of parallelograms.	Write a word problem involving postulates, relationships, and theorems of parallelograms.
3	**I understand the entire standard.** • Prove relationships and theorems about parallelograms. Solve mathematical and real-world problems involving postulates, relationships, and theorems of parallelograms.	Quadrilateral $ABCD$ is a parallelogram. Prove that $\angle A \cong \angle C$.

Name _____ Date _____

MA.912.GR.1.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Use theorems about parallelograms to solve problems.	In parallelogram $EFGH$, $m\angle E = 62°$, $EF = 10$, and $FG = 14$. Find the measures of the remaining angles and sides.
1	**I understand the basic skills needed to begin learning this standard.** • Identify pairs of parallel sides of quadrilaterals.	Name all the pairs of parallel sides, if any, in each quadrilateral. **a.** trapezoid $ABCD$  **b.** rectangle $EFGH$  **c.** kite $JKLM$ 

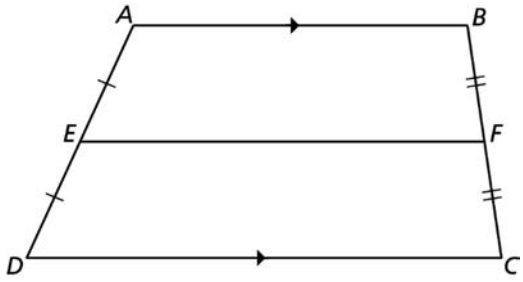
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

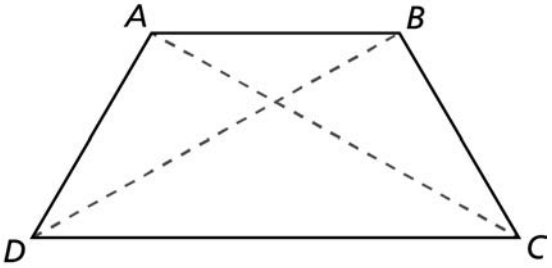
MA.912.GR.1.5 Prove relationships and theorems about trapezoids. Solve mathematical and real-world problems involving postulates, relationships and theorems of trapezoids.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to solve mathematical and real-world problems involving postulates, relationships and theorems of trapezoids.	*ABCD* is a trapezoid.  If $DC = 17$ and $EF = 15$, what is AB?
3	**I understand the entire standard.** • Prove relationships and theorems about trapezoids. Solve mathematical and real-world problems involving postulates, relationships and theorems of trapezoids.	*ABCD* is a trapezoid and $\overline{AB} \cong \overline{CD}$. Prove that $\overline{AC} \cong \overline{DB}$.

Name _____ Date _____

MA.912.GR.1.5 (continued)

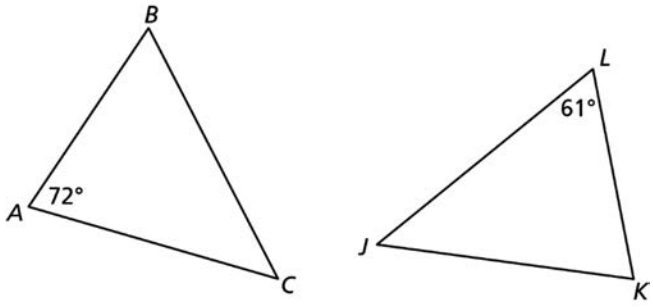
	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Use theorems about trapezoids to solve problems.	*EFGH* is an isosceles trapezoid. If $m\angle E = 74°$, find the measures of the other angles.
1	**I understand the basic skills needed to begin learning this standard.** • Recognize terms related to trapezoids.	Name the line segments that represent each term.  **a.** bases **b.** diagonals

Name_____ Date_____

Evidence-Based Scale Worksheets

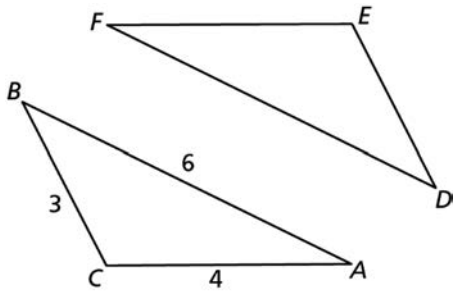
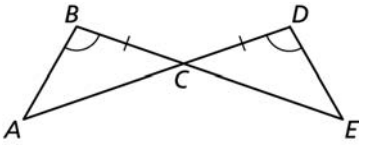
Geometric Reasoning
MA.912.GR.1.6 Solve mathematical and real-world problems involving congruence or similarity in two-dimensional figures.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to solve mathematical and real-world problems using congruence or similarity in a two-dimensional figure.	A carpenter is sketching plans for the roof of a shed. The frame will be an isosceles triangle with a base of 8 feet, and the two congruent sides will each measure 5 feet. On the sketch, the base measures 12 inches. What should the length of the congruent sides be to keep the sketch similar to the actual frame?
3	**I understand the entire standard.** • Solve mathematical and real-world problems involving congruence or similarity in two-dimensional figures.	In the diagram, $\triangle ABC \cong \triangle KLJ$. What is the measure of $m\angle J$? 

Name _____ Date _____

MA.912.GR.1.6 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Recognize that corresponding parts of congruent figures are congruent.	In the diagram, $\triangle ABC \cong \triangle FDE$. What is the length of DE? 
1	**I understand the basic skills needed to begin learning this standard.** • Recognize corresponding parts of congruent or similar figures.	Identify all of the congruent sides and angles in the diagram. 

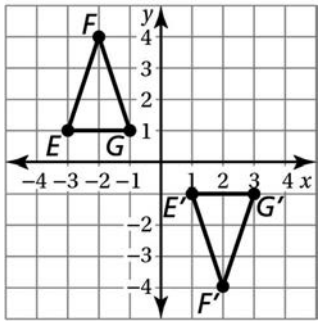
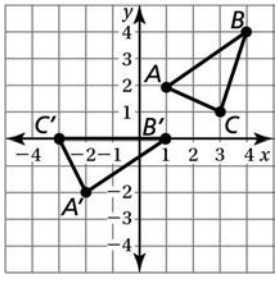
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

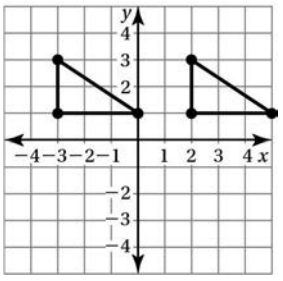
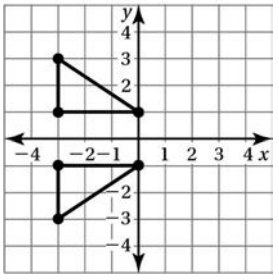
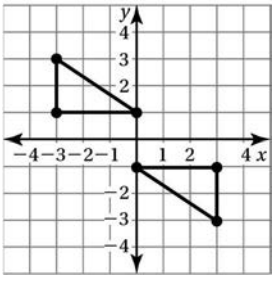
MA.912.GR.2.1 Given a preimage and image, describe the transformation and represent the transformation algebraically using coordinates.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Describe different combinations of transformations of a given preimage that can result in the same image.	Describe two different ways of transforming $\triangle EFG$ to obtain $\triangle E'F'G'$ 
3	**I understand the entire standard.** • Given a preimage and image, describe the transformation and represent the transformation algebraically using coordinates.	 **a.** Describe the transformation from $\triangle ABC$ to $\triangle A'B'C'$. **b.** Write a rule to describe the transformation.

Name _____ Date _____

MA.912.GR.2.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Describe transformations given algebraically.	Describe each of these transformations. **a.** $(x, y) \rightarrow (x, -y)$ **b.** $(x, y) \rightarrow (2x, 2y)$ **c.** $(x, y) \rightarrow (x + 2, y - 5)$
1	**I understand the basic skills needed to begin learning this standard.** • Given a preimage and an image, recognize the type of transformation.	Identify each transformation as a dilation, translation, rotation or reflection. **a.**  **b.**  **c.** 

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning
MA.912.GR.2.2 Identify transformations that do or do not preserve distance.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone to identify transformations that do or do not preserve distance.	$\triangle DEF$ is mapped onto $\triangle D'E'F'$ by the transformation $(x, y) \rightarrow (3x, 3y)$. **a.** Is $\overline{DE} \cong \overline{D'E'}$? **b.** Is $\angle DFE \cong \angle D'F'E'$?
3	**I understand the entire standard.** • Identify transformations that do or do not preserve distance.	$\triangle ABC$ is mapped onto $\triangle A'B'C'$ by the transformation $(x, y) \rightarrow (-x, -y)$. **a.** Is $\overline{AB} \cong \overline{A'B'}$? **b.** Is $\angle ABC \cong \angle A'B'C'$?

Name _____ Date _____

MA.912.GR.2.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Know that translations, reflections and rotations preserve distance but dilations do not.	Indicate whether each of these transformations preserves distance. **a.** dilation **b.** reflection **c.** rotation **d.** translation
1	**I understand the basic skills needed to begin learning this standard.** • Define translations, rotations, reflections and dilations.	Define each of these transformations. **a.** translation **b.** rotation **c.** reflection **d.** dilation

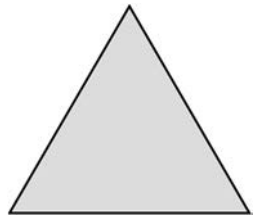
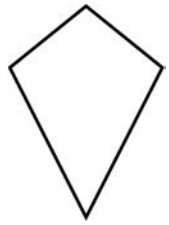
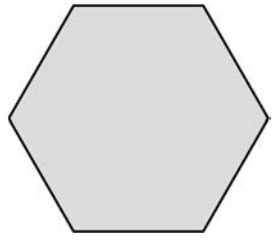
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

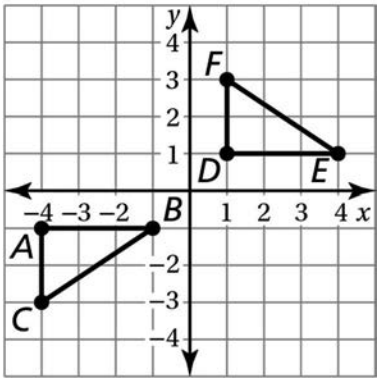
MA.912.GR.2.3 Identify a sequence of transformations that will map a given figure onto itself or onto another congruent or similar figure.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Create a quadrilateral and describe the reflections and rotations that map it onto itself.	Create a quadrilateral that has rotational symmetry but not reflection symmetry. Describe the rotations that map the quadrilateral onto itself.
3	**I understand the entire standard.** • Identify a sequence of transformations that will map a given figure onto itself or onto another congruent or similar figure.	Describe the rotations and reflections that will map each figure onto itself. **a.**  **b.**  **c.** 

Name _____ Date _____

MA.912.GR.2.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Describe a series of transformations that demonstrates the congruence of two figures.	Describe a series of transformations that shows that $\triangle ABC \cong \triangle DEF$. 
1	**I understand the basic skills needed to begin learning this standard.** • Identify rigid motions.	Identify if each transformation is a rigid motion. **a.** dilation **b.** reflection **c.** rotation **d.** translation

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

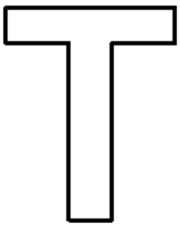
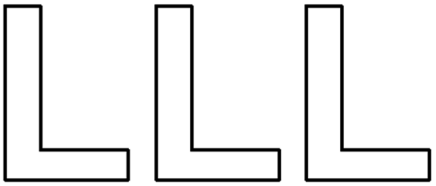
H **MA.912.GR.2.4** Determine symmetries of reflection, symmetries of rotation and symmetries of translation of a geometric figure.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Design a figure that has a desired symmetry of reflection, rotation or translation.	Design a geometric figure that has reflection symmetry but not rotational symmetry.
3	**I understand the entire standard.** • Determine symmetries of reflection, symmetries of rotation and symmetries of translation of a geometric figure.	Identify all of the symmetries of reflection, roation and translation in a regular pentagon.

Name _____ Date _____

MA.912.GR.2.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Identify figures with line symmetry, rotational symmetry and translation symmetry.	Identify whether each figure has line symmetry, rotational symmetry or translation symmetry. **a.**  **b.**  **c.** 
1	**I understand the basic skills needed to begin learning this standard.** • Define line symmetry and rotational symmetry.	Define the terms. **a.** line symmetry **b.** rotational symmetry

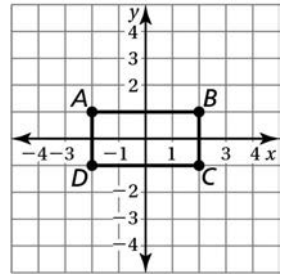
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

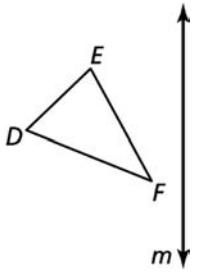
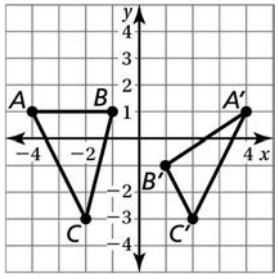
MA.912.GR.2.5 Given a geometric figure and a sequence of transformations, draw the transformed figure on a coordinate plane.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone how to draw a transformed figure on a coordinate plane.	Dilate quadrilateral *ABCD* by a scale factor of 2 from the point (0, 0), then rotate the figure 90° counterclockwise. Draw the transformed quadrilateral. 
3	**I understand the entire standard.** • Given a geometric figure and a sequence of transformations, draw the transformed figure on a coordinate plane.	$\triangle JKL$ has vertices $J(3, 1)$, $K(3, 4)$, and $L(1, -2)$. Reflect $\triangle JKL$ across the x-axis and translate it 3 units left to form $\triangle J'K'L'$. Draw the transformed triangle.

Name _____ Date _____

MA.912.GR.2.5 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Given a geometric figure and one transformation, draw the transformed figure.	Draw a reflection of $\triangle DEF$ across line m. 
1	**I understand the basic skills needed to begin learning this standard.** • Identify transformations of figures.	Identify the transformation of $\triangle ABC$ to $\triangle A'B'C'$. 

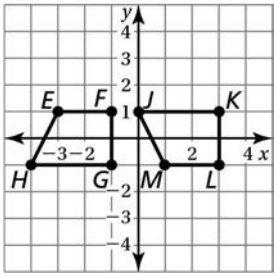
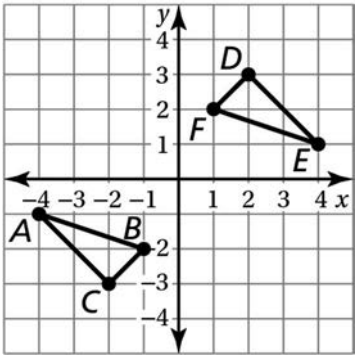
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

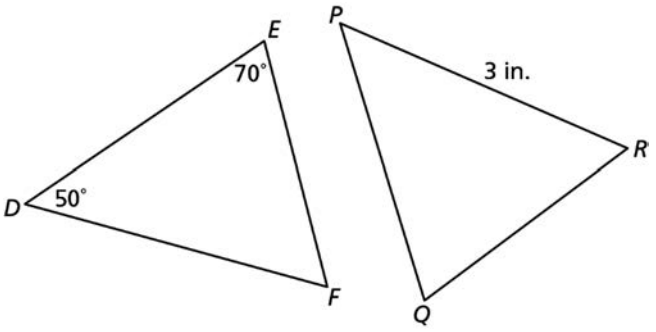
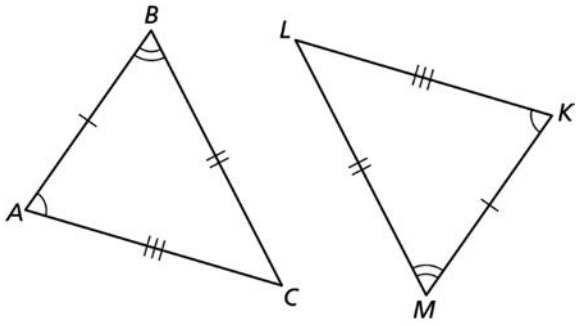
MA.912.GR.2.6 Apply rigid transformations to map one figure onto another to justify that the two figures are congruent.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone how to apply rigid transformations to map one figure onto another to justify that the two figures are congruent	Find a rigid transformation that can be used to show that quadrilateral *EFGH* and quadrilateral *JKLM* are congruent. 
3	**I understand the entire standard.** • Apply rigid transformations to map one figure onto another to justify that the two figures are congruent.	Find a rigid transformation that can be used to show that $\triangle ABC \cong \triangle EFD$. 

Name _____ Date _____

MA.912.GR.2.6 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Use congruency to find angle measures and side lengths.	$\triangle DEF \cong \triangle PRQ$. Find the value of each measure.  **a.** $m\angle P$ **b.** $m\angle R$ **c.** DE
1	**I understand the basic skills needed to begin learning this standard.** • Identify corresponding angles and sides of two congruent figures.	Identify all pairs of corresponding sides and angles for the congruent triangles. 

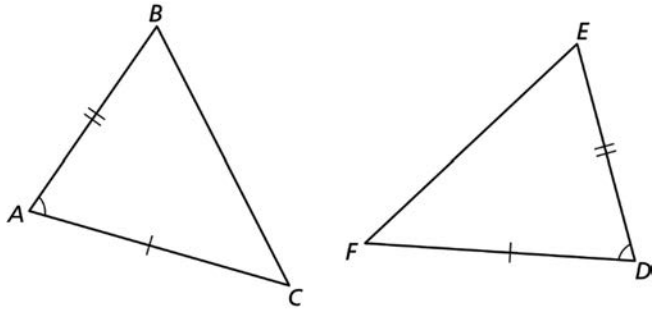
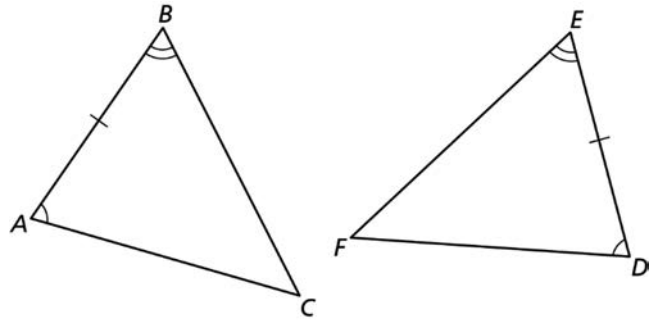
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

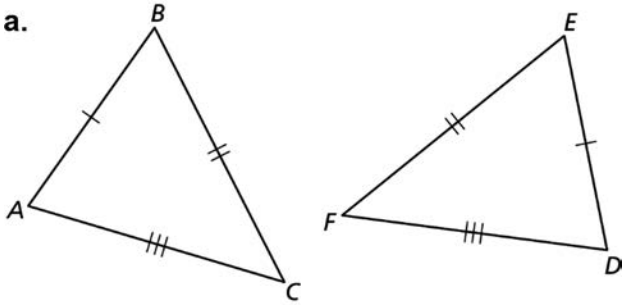
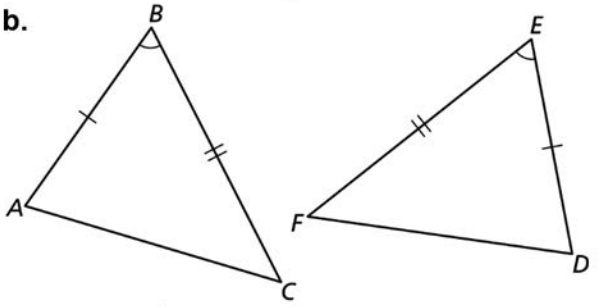
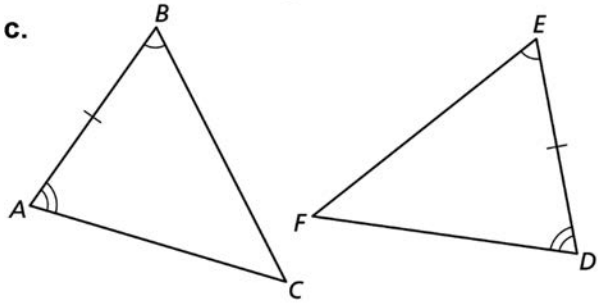
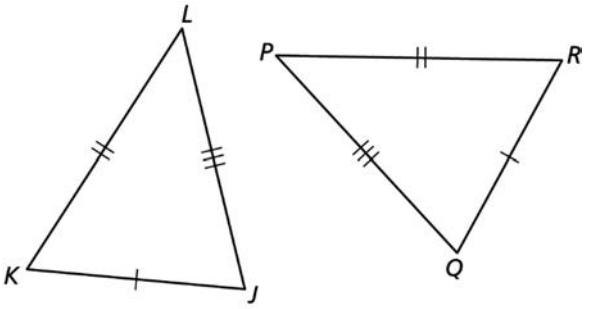
(H) **MA.912.GR.2.7** Justify the criteria for triangle congruence using the definition of congruence in terms of rigid transformations.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to justify the criteria for triangle congruence using the definition of congruence in terms of rigid transformations.	In the diagram, $\angle A \cong \angle D$, $\overline{AC} \cong \overline{DF}$, and $\overline{AB} \cong \overline{DE}$.  Using rigid motions, explain why $\triangle ABC$ must be congruent to $\triangle DEF$.
3	**I understand the entire standard.** • Justify the criteria for triangle congruence using the definition of congruence in terms of rigid transformations.	In the diagram, $\angle A \cong \angle D$, $\angle B \cong \angle E$, and $\overline{AB} \cong \overline{DE}$.  Using rigid motions, explain why $\triangle ABC$ must be congruent to $\triangle DEF$.

Name _____ Date _____

MA.912.GR.2.7 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Recognize triangle congruence theorems (ASA, SAS, SSS).	Which triangle congruence theorem proves the triangles are congruent? **a.**  **b.**  **c.** 
1	**I understand the basic skills needed to begin learning this standard.** • Identify congruent parts of congruent triangles.	The two triangles are congruent. List all the pairs of congruent sides and congruent angles. 

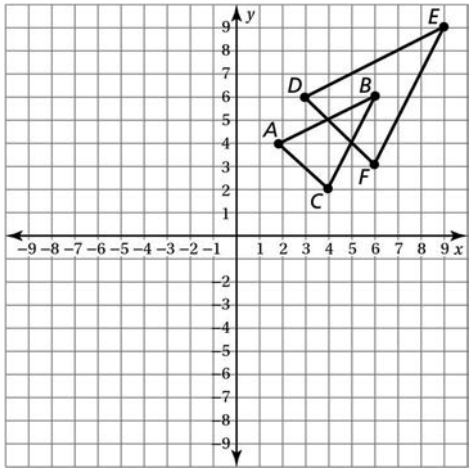
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

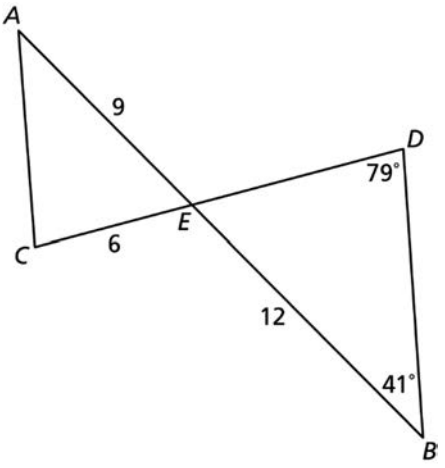
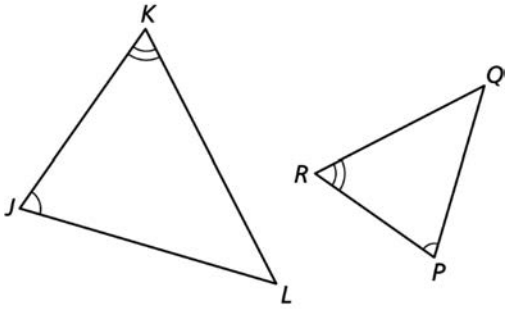
MA.912.GR.2.8 Apply an appropriate transformation to map one figure onto another to justify that the two figures are similar.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Write a word problem using transformations to map one figure onto another.	A company logo is designed like the letter V on a rectangular background. The sides of the V form a 48° angle. The width of the rectangle is 1.4 cm, and the height of the rectangle is 2.2 cm. For use on a poster, the logo must be enlarged so that the height is 5.5 cm. **a.** Describe the transformation that will create the desired size logo. **b.** What will be the width of the rectangular background after the transformation? **c.** What will be the measure of the angle formed by the sides of the letter V?
3	**I understand the entire standard.** • Apply an appropriate transformation to map one figure onto another to justify that the two figures are similar	Find a transformation that will justify that $\triangle ABC$ and $\triangle DEF$ are similar. 

Name _____ Date _____

MA.912.GR.2.8 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find side lengths and angle measures in similar figures.	$\triangle AEC$ is similar to $\triangle BED$. Find each measure.  **a.** $m\angle A$ **b.** $m\angle C$ **c.** DE
1	**I understand the basic skills needed to begin learning this standard.** • Identify corresponding angles and sides of two similar figures.	Identify all pairs of corresponding sides and angles for the congruent triangles. 

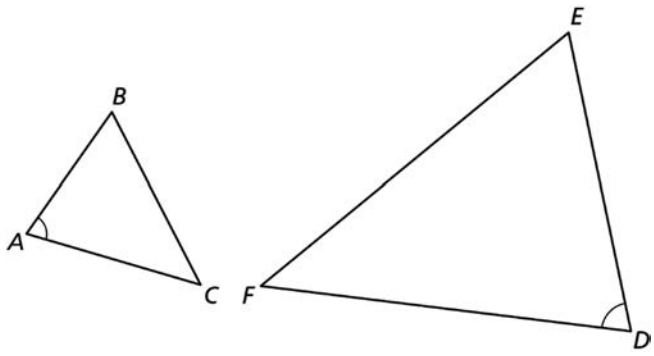
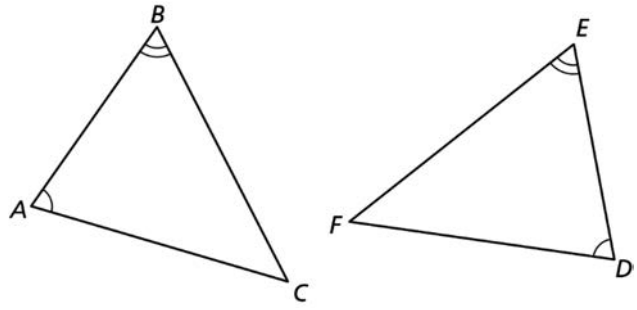
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

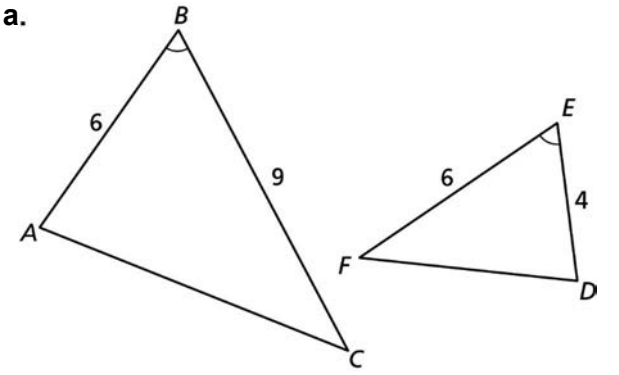
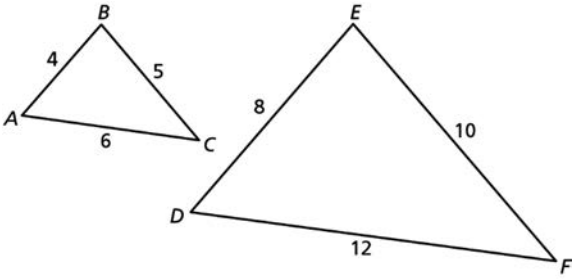
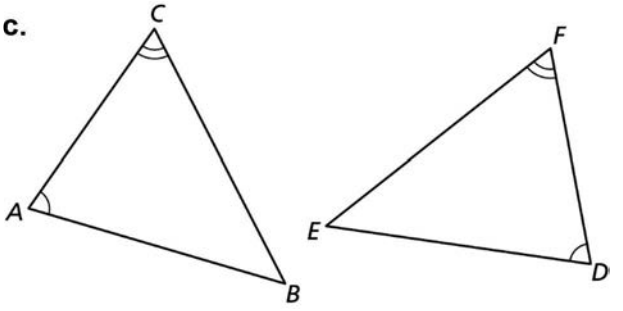
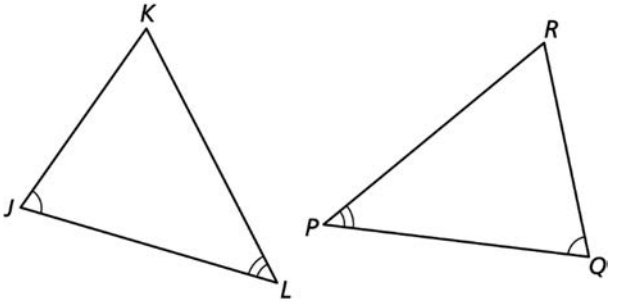
H MA.912.GR.2.9 Justify the criteria for triangle similarity using the definition of similarity in terms of non-rigid transformations.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to justify the criteria for triangle similarity using the definition of similarity in terms of non-rigid transformations.	In the diagram, $DE = 2AB$, $DF = 2AC$, and $m\angle A \cong \angle D$.  Using transformations, explain why $\triangle ABC$ must be similar to $\triangle DEF$.
3	**I understand the entire standard.** • Justify the criteria for triangle similarity using the definition of similarity in terms of non-rigid transformations.	In the diagram, $\angle A \cong \angle D$ and $\angle B \cong \angle E$.  Using transformations, explain why $\triangle ABC$ must be similar to $\triangle DEF$.

Name _____ Date _____

MA.912.GR.2.9 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Recognize triangle similarity theorems (AA, SAS, SSS).	Which triangle similarity theorem proves the triangles are similar? **a.**  **b.**  **c.** 
1	**I understand the basic skills needed to begin learning this standard.** • Identify corresponding parts of similar triangles.	The two triangles are similar. List all the pairs of corresponding sides and corresponding angles. 

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning
MA.912.GR.3.1 Determine the weighted average of two or more points on a line.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Solve problems involving the weighted average of two or more points on a line.	Point *B* has coordinates (–6, –3), point *C* has coordinates (–4, 1) and point *D* has coordinates (1, 11). Point *C* is the weighted average of points *B* and *D*. If point *D* has weight 2, what is the weight of Point *B*?
3	**I understand the entire standard.** • Determine the weighted average of two or more points on a line.	Point *A* has coordinates (–2, 5). Point *B* has coordinates (10, –3). Find the weighted average of *A* and *B* if *A* has weight 3 and *B* has weight 1.

Name _____ Date _____

MA.912.GR.3.1 (continued)

<table>
<tr><th></th><th>Description</th><th>Evidence</th></tr>
<tr><td>2</td><td>I understand some parts, but not the entire standard.
• Find the weighted average of a set of numbers.</td><td>Scores for a geometry quiz are shown in the table.
<table><tr><th>Score</th><th>Number of Students</th></tr><tr><td>9</td><td>3</td></tr><tr><td>8</td><td>8</td></tr><tr><td>7</td><td>12</td></tr><tr><td>6</td><td>2</td></tr></table>
What is the average score on the quiz?</td></tr>
<tr><td>1</td><td>I understand the basic skills needed to begin learning this standard.
• Find the average (arithmetic mean) of a set of numbers.</td><td>Find the average (arithmetic mean) of the numbers.
5, 9, 11, 7, 11</td></tr>
</table>

Name_____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.912.GR.3.2 Given a mathematical or real-world context, use coordinate geometry to classify or justify definitions, properties and theorems involving circles, triangles or quadrilaterals.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Given some points on a geometric figure, use coordinate geometry to find additional points based on geometric properties.	Quadrilateral *DEFG* has coordinates *D*(1, –2), *E*(–1, 2), and *F*(3, 4). Find the coordinates of point *F* so that quadrilateral *DEFG* is a square.
3	**I understand the entire standard.** • Given a mathematical or real-world context, use coordinate geometry to classify or justify definitions, properties and theorems involving circles, triangles or quadrilaterals.	$\triangle ABC$ has vertices *A*(–2, –1), *B*(–3, 3), and *C*(2, 0). Classify $\triangle ABC$. Justify your response.

Name _____ Date _____

MA.912.GR.3.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Use coordinates to find distance, slope and midpoint.	Given the points $A(3, -4)$ and $B(-7, 20)$, find each of the following. **a.** slope of $\overleftrightarrow{AB}$ **b.** the length AB **c.** the midpoint of $\overline{AB}$
1	**I understand the basic skills needed to begin learning this standard.** • Recall the slope, distance and midpoint formulas.	Given the points $A(x_1, y_1)$ and $B(x_2, y_2)$, find each of the following. **a.** slope of $\overleftrightarrow{AB}$ **b.** the length AB **c.** the midpoint of $\overline{AB}$

Name_____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.912.GR.3.3 Use coordinate geometry to solve mathematical and real-world geometric problems involving lines, circles, triangles and quadrilaterals.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to use coordinate geometry to solve mathematical and real-world geometric problems involving lines, circles, triangles and quadrilaterals.	Quadrilateral *ABCD* is a parallelogram. Three vertices are $A(3, -1)$, $B(-2, 1)$, and $C(1, 4)$. Find the coordinates of point *D*.
3	**I understand the entire standard.** • Use coordinate geometry to solve mathematical and real-world geometric problems involving lines, circles, triangles and quadrilaterals.	The points $A(0, 4)$ and $B(2, 0)$ are the endpoints of the diameter of a circle. Find the equation of the line tangent to the circle passing through point *B*.

Name _____ Date _____

MA.912.GR.3.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Solve simple problems using slope, distance and midpoint formulas.	Point $B(6, -1)$ is the midpoint of segment $\overline{AC}$. If the coordinates of point A are $A(3, 4)$, what are the coordinates of point C?
1	**I understand the basic skills needed to begin learning this standard.** • Use the slope, midpoint and distance formulas.	Given points $D(-3, 4)$ and $E(5, 7)$. **a.** What is the slope of the line passing through points D and E? **b.** What is the distance between points D and E? **c.** What is the midpoint of the segment $\overline{DE}$?

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

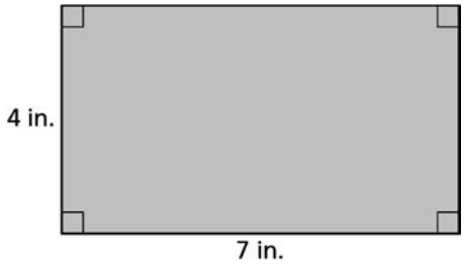
MA.912.GR.3.4 Use coordinate geometry to solve mathematical and real-world problems on the coordinate plane involving perimeter or area of polygons.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Write a word problem using coordinate geometry to find the area or perimeter of polygons.	A farmer plans to fence a triangular pasture. She uses the origin on a coordinate plane to represent one corner of the pasture. The second corner is located 200 yards east and 100 yards south of the origin. The third corner is located 100 yards east and 200 yards north of the origin. **a.** How many yards of fencing will be needed to enclose the pasture? Round to the nearest whole number. **b.** What is the total area of the pasture?
3	**I understand the entire standard.** • Use coordinate geometry to solve mathematical and real-world problems on the coordinate plane involving perimeter or area of polygons.	A triangle has vertices (–3, 3), (0, 5) and (4, 1). **a.** Find the perimeter of the triangle. **b.** Find the area of the triangle.

Name _____ Date _____

MA.912.AR.3.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the area and perimeter of a polygon.	 **a.** What is the perimeter of the rectangle? **b.** What is the area of the rectangle?
1	**I understand the basic skills needed to begin learning this standard.** • Use the distance formula to find the distance between two points.	What is the distance between the points (3, 7) and (2, –5)?

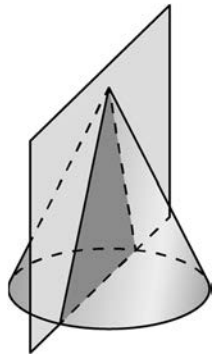
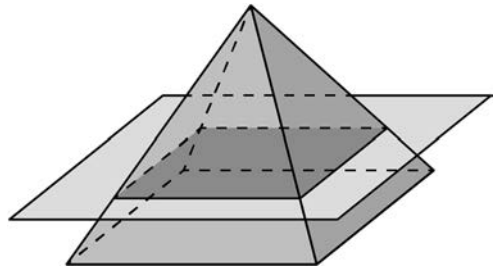
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

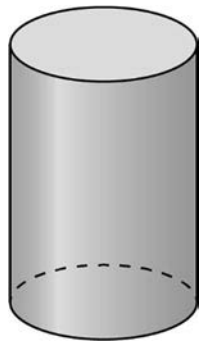
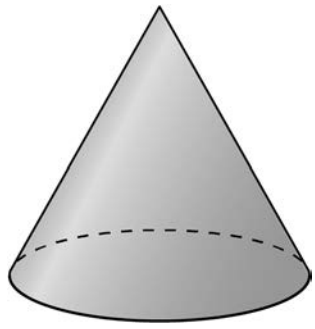
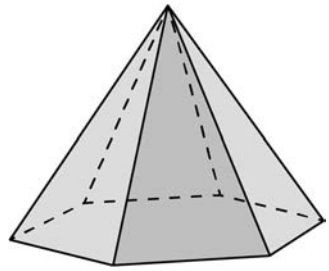
MA.912.GR.4.1 Identify the shapes of two-dimensional cross-sections of three-dimensional figures.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone how to identify the shapes of two-dimensional cross-sections of three-dimensional figures	Describe the cross section formed by the intersection of the plane and the solid. 
3	**I understand the entire standard.** • Identify the shapes of two-dimensional cross-sections of three-dimensional figures.	Describe the cross section formed by the intersection of the plane and the solid. 

Name _____ Date _____

MA.912.GR.4.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Classify solids	Name each solid. **a.**  **b.**  **c.** 
1	**I understand the basic skills needed to begin learning this standard.** • Define cross section.	Define *cross section*.

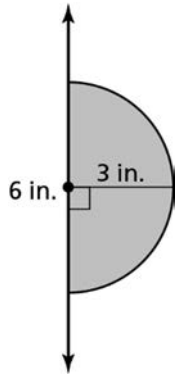
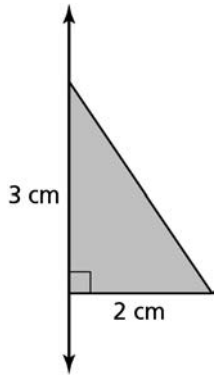
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

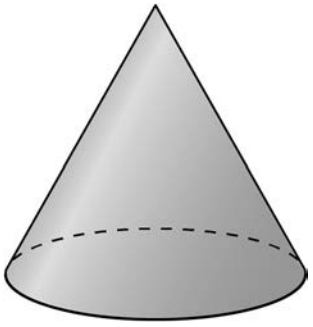
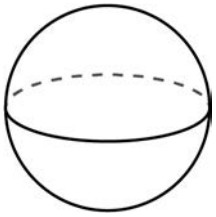
MA.912.GR.4.2 Identify three-dimensional objects generated by rotations of two-dimensional figures.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to identify three-dimensional objects generated by rotations of two-dimensional figures.	Identify and describe the solid produced by rotating the figure. 
3	**I understand the entire standard.** • Identify three-dimensional objects generated by rotations of two-dimensional figures.	Identify and describe the solid produced by rotating the figure. 

Name _____ Date _____

MA.912.GR.4.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Recognize solids of revolution.	Identify each solid. **a.**  **b.**  **c.** 
1	**I understand the basic skills needed to begin learning this standard.** • Define axis of revolution.	Define *axis of revolution*.

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.912.GR.4.3 Extend previous understanding of scale drawings and scale factors to determine how dilations affect the area of two-dimensional figures and the surface area or volume of three-dimensional figures.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Write a word problem to determine how dilations affect the area of two dimensional figures and the surface area or volume of three-dimensional figures.	It takes 80 square inches of cardboard to make a box shaped like a rectangular prism. A similar box is constructed using 320 square inches of cardboard. How many times greater is the volume of the second box?
3	**I understand the entire standard.** • Extend previous understanding of scale drawings and scale factors to determine how dilations affect the area of two-dimensional figures and the surface area or volume of three-dimensional figures.	A rectangular prism has a surface area of 52 square inches and a volume of 24 cubic inches. If each edge of the prism is stretched by a scale factor of $\frac{3}{2}$, find the surface area and volume of the transformed prism.

Name _____ Date _____

MA.912.GR.4.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Determine how dilations affect the side lengths of two-dimensional figures.	$\triangle ABC$ is dilated by a scale factor of $\frac{2}{3}$ to form $\triangle DEF$. $AB = 12$ and $EF = 36$. Find each of these lengths. **a.** DE **b.** BC
1	**I understand the basic skills needed to begin learning this standard.** • Define dilation and scale factor.	Define each of the terms. **a.** dilation **b.** scale factor

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.912.GR.4.4 Solve mathematical and real-world problems involving the area of two-dimensional figures.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Solve mathematical and real-world problems involving the volume of three-dimensional figures.	The density of steel is approximately 8 grams per cubic centimeter. What is the weight of a steel sphere with a radius of 3 centimeters?
3	**I understand the entire standard.** • Solve mathematical and real-world problems involving the area of two-dimensional figures.	The downtown neighborhood of a small city is shaped like a square. Each edge measures $\frac{3}{4}$ of a mile. Find the number of people who live downtown if the population density is 5600 people per square mile.

Name _____ Date _____

MA.912.GR.4.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the population density.	Find the population density of a town with a population of 33,900 and a land area of 9.38 square miles.
1	**I understand the basic skills needed to begin learning this standard.** • Define population density.	Define *population density*.

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.912.GR.4.5 Solve mathematical and real-world problems involving the volume of three-dimensional figures limited to cylinders, pyramids, prisms, cones and spheres.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Write a word problem involving the volume of three-dimensional figures limited to cylinders, pyramids, prisms, cones and spheres.	The density of asphalt is 140 pounds per cubic foot. What is the weight of asphalt in a conical pile with a height of 8 feet and a radius of 5 feet?
3	**I understand the entire standard.** • Solve mathematical and real-world problems involving the volume of three-dimensional figures limited to cylinders, pyramids, prisms, cones and spheres.	A cylindrical bucket has a height of 14.5 inches and a diameter of 11 inches. Three gallons of water are poured into the bucket. A gallon contains 231 cubic inches. How many inches is the surface of the water below the top of the bucket?

Name _____ Date _____

MA.912.GR.4.5 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the volumes of cylinders, pyramids, prisms, cones and spheres.	Find the volume of each figure. **a.** cylinder with a height of 5 centimeters and a radius of 2 centimeters **b.** square pyramid with a height of 5 centimeters and a base area of 6 square centimeters **c.** rectangular prism with edges of 3 centimeters, 5 centimeters and 8 centimeters **d.** right circular cone with a height of 5 centimeters and a radius of 2 centimeters **e.** sphere with a radius of 3 centimeters
1	**I understand the basic skills needed to begin learning this standard.** • Recall the volume formulas.	Write the formula for the volume of each figure. **a.** cylinder **b.** pyramid **c.** prism **d.** cone **e.** sphere

Name_____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.912.GR.4.6 Solve mathematical and real-world problems involving the surface area of three-dimensional figures limited to cylinders, pyramids, prisms, cones and spheres.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Write a word problem involving the surface area of three-dimensional figures limited to cylinders, pyramids, prisms, cones and spheres.	A spherical water tank holds 10,000 cubic feet of water. What is the surface area of the tank?
3	**I understand the entire standard.** • Solve mathematical and real-world problems involving the surface area of three-dimensional figures limited to cylinders, pyramids, prisms, cones and spheres.	A propane tank is shaped like a cylinder with a hemisphere on each end. The length of the cylindrical portion is 4 feet, and the radius of the hemispheres and cylinder is 1 foot. Find the surface area of the propane tank.

Name _____ Date _____

MA.912.GR.4.6 (continued)

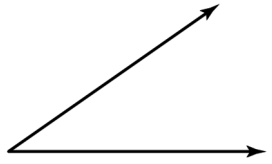
	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the surface area of cylinders, pyramids, prisms, cones and spheres.	Find the surface area of each figure. **a.** cylinder with a height of 5 centimeters and a radius of 2 centimeters **b.** square pyramid with a slant height of 6 centimeters and the length of each edge of the base of 2 centimeters **c.** rectangular prism with edges of 3 centimeters, 5 centimeters and 8 centimeters **d.** right circular cone with a slant height of 6 centimeters and a radius of 2 centimeters **e.** sphere with a radius of 3 centimeters
1	**I understand the basic skills needed to begin learning this standard.** • Recall the surface area formulas.	Write the formula for the surface area of each figure. **a.** cylinder **b.** pyramid **c.** cone **d.** sphere

Name _____ Date _____

Evidence-Based Scale Worksheets

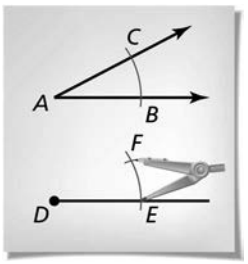
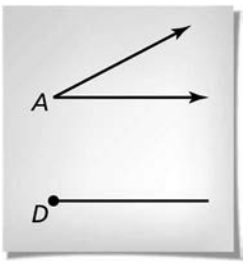
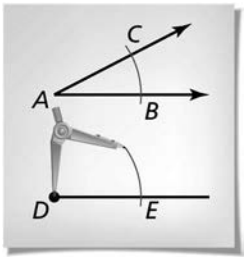
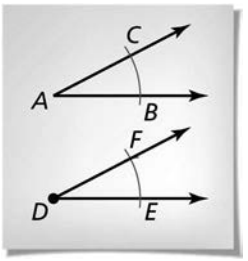
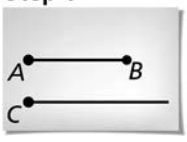
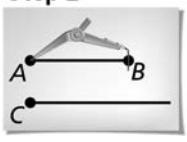
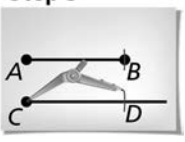
Geometric Reasoning
MA.912.GR.5.1 Construct a copy of a segment or an angle.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to construct a copy of a segment or an angle.	
3	**I understand the entire standard.** • Construct a copy of a segment or an angle.	**a.** Use a compass and a straightedge to construct a copy of the segment.  **b.** Use a compass and a straightedge to construct a copy of the angle. 

Name _____ Date _____

MA.912.GR.5.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Determine the sequence of steps to copy an angle.	Place the steps to copy an angle in the correct order. **a.**  **b.**  **c.**  **d.** 
1	**I understand the basic skills needed to begin learning this standard.** • Identify the type of construction given the parts of the construction.	Identify the type of construction given the steps below. **Step 1**  **Step 2**  **Step 3** 

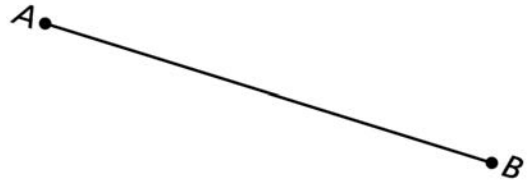
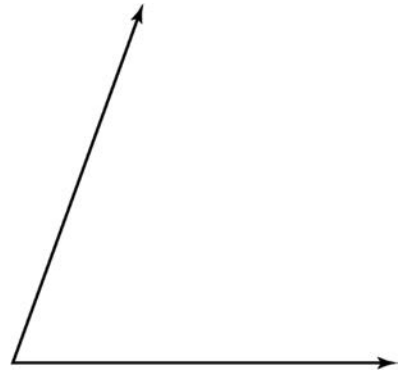
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

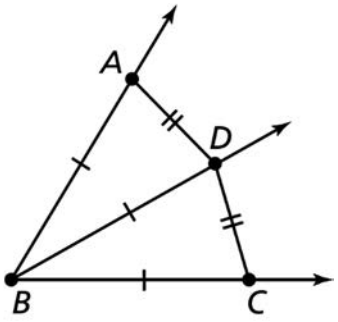
MA.912.GR.5.2 Construct the bisector of a segment or an angle, including the perpendicular bisector of a line segment.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to construct a copy of a segment or an angle.	
3	**I understand the entire standard.** • Construct the bisector of a segment or an angle, including the perpendicular bisector of a line segment.	**a.** Use a compass and a straightedge to construct the perpendicular bisector of the line segment.  **b.** Use a compass and a straightedge to construct the bisector of the angle. 

Name _____ Date _____

MA.912.GR.5.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Explain why angles are congruent or segments are congruent in a diagram showing a construction.	Explain why $\angle ABD \cong \angle CBD$ in the following diagram. 
1	**I understand the basic skills needed to begin learning this standard.** • Define the bisector of a segment or an angle.	Define the terms. **a.** angle bisector **b.** segment bisector

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning
MA.912.GR.5.3 Construct the inscribed and circumscribed circles of a triangle.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to construct the inscribed and circumscribed circles of a triangle.	
3	**I understand the entire standard.** • Construct the inscribed and circumscribed circles of a triangle.	**a.** Using a straightedge, construct a triangle. Then using the straightedge and a compass, construct the inscribed circle of the triangle. **b.** Using a straightedge, construct a triangle. Then using the straightedge and a compass, construct the circumscribed circle of the triangle.

Name _____ Date _____

MA.912.GR.5.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Determine whether the inscribed or circumscribed circles result from a given construction.	Determine whether the inscribed or the circumscribed circle of a triangle results from each construction. **a.** Construct the perpendicular bisectors of two sides of the triangle. Place the point of the compass at the intersection of the perpendicular bisectors and construct a circle through all three vertices of the triangle. **b.** Construct the angle bisectors of two angles of the triangle. Construct a perpendicular line from the intersection of the angle bisectors through one side of the triangle. Place the point of the compass at the intersection of the angle bisectors and construct a circle passing through the point where the perpendicular line intersects the side of the triangle.
1	**I understand the basic skills needed to begin learning this standard.** • Define the inscribed and circumscribed circles of a triangle.	Define the terms. **a.** circumscribed circle **b.** inscribed circle

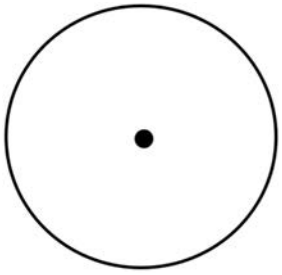
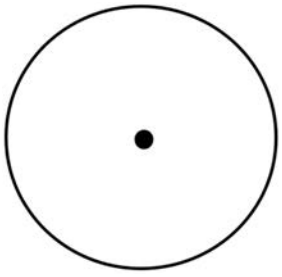
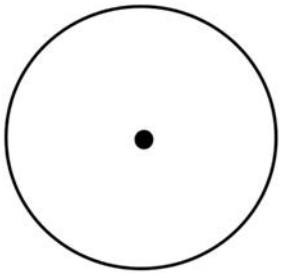
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

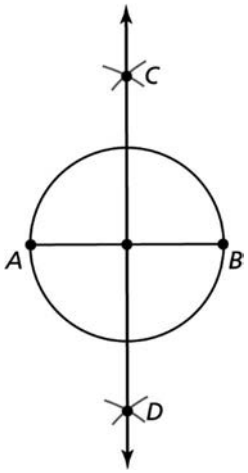
H MA.912.GR.5.4 Construct a regular polygon inscribed in a circle. Regular polygons are limited to triangles, quadrilaterals and hexagons.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to construct a regular polygon inscribed in a circle.	
3	**I understand the entire standard.** • Construct a regular polygon inscribed in a circle. Regular polygons are limited to triangles, quadrilaterals and hexagons.	Use a compass and straightedge to construct each figure inscribed in a circle. **a.** equilateral triangle  **b.** square  **c.** regular hexagon 

Name _____ Date _____

MA.912.GR.5.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Determine the sequence of steps in the construction of a geometric figure inscribed in a circle.	Place the steps to construct a square inscribed in a circle in the correct order. Not all steps will be used. **A.** Use the compass to measure the radius. **B.** Connect the endpoints of the diameter to the endpoints of the perpendicular bisector. **C.** Use the center and the straightedge to construct a diameter of the circle. **D.** Make two arcs that intersect the circle at two different points. **E.** Construct the perpendicular bisector of the diameter.
1	**I understand the basic skills needed to begin learning this standard.** • Explain why a step in a construction has a certain property.	Explain why $\overleftrightarrow{CD}$ is the perpendicular bisector of $\overline{AB}$ 

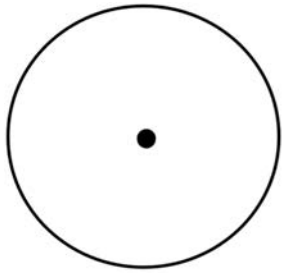
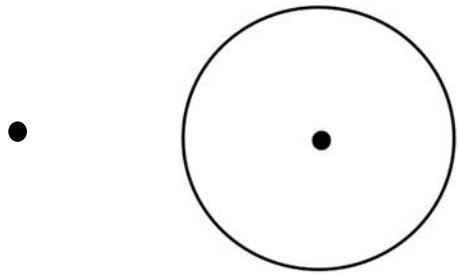
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

H **MA.912.GR.5.5** Given a point outside a circle, construct a line tangent to the circle that passes through the given point.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Use the construction of lines tangent to a circle to construct a circumscribed polygon.	Construct a triangle that circumscribes the circle. 
3	**I understand the entire standard.** • Given a point outside a circle, construct a line tangent to the circle that passes through the given point.	Construct a line tangent to the circle from the point. 

Name _____ Date _____

MA.912.GR.5.5 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Construct the perpendicular bisector of a line segment.	Construct the perpendicular bisector of the line segment.
1	**I understand the basic skills needed to begin learning this standard.** • Define tangent to a circle and perpendicular bisector.	Define the terms. **a.** tangent to a circle **b.** perpendicular bisector

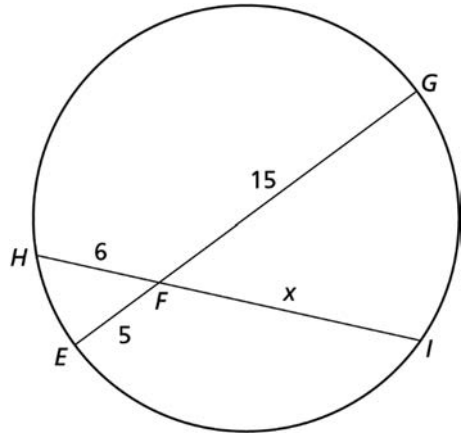
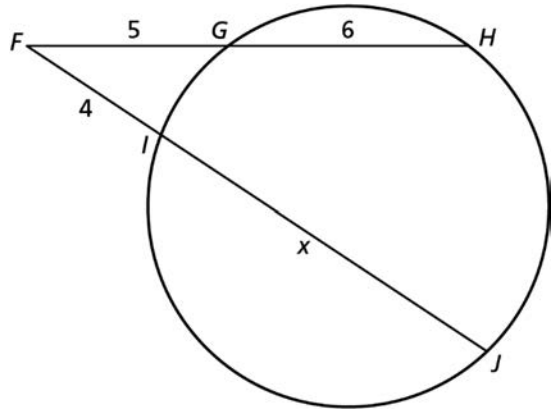
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

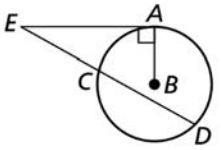
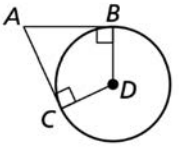
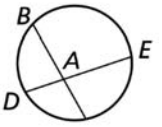
MA.912.GR.6.1 Solve mathematical and real-world problems involving the length of a secant, tangent, segment or chord in a given circle.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Prove theorems related to the lengths of secant, tangent, segment or chord in a given circle.	Prove that congruent chords of a circle intercept congruent arcs.
3	**I understand the entire standard.** • Solve mathematical and real-world problems involving the length of a secant, tangent, segment or chord in a given circle.	Find the value of x. Explain your reasoning. **a.**  **b.** 

Name _____ Date _____

MA.912.GR.6.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Identify relationships of secants, tangents and chords of circles.	Match each relationship with one of the diagrams. I  II  III  **a.** $\overline{AB} \cong \overline{AC}$ **b.** $AB \bullet AC = AD \bullet AE$ **c.** $EA^2 = EC \bullet ED$
1	**I understand the basic skills needed to begin learning this standard.** • Define secant, tangent and chord of a circle.	Define these terms related to circles. **a.** secant **b.** tangent **c.** chord

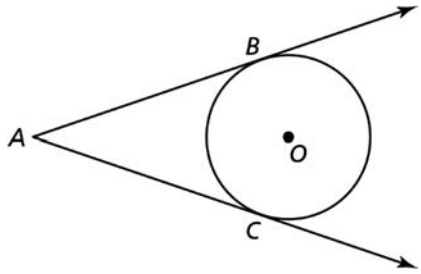
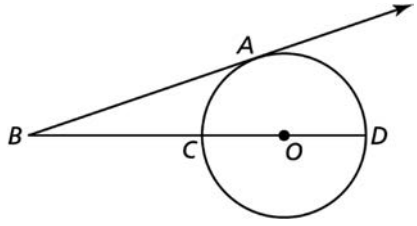
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

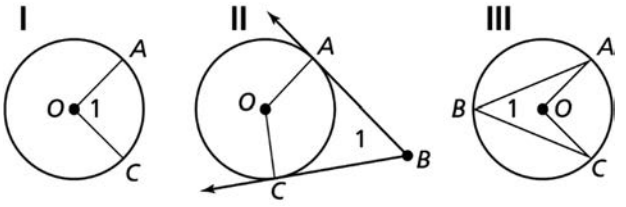
MA.912.GR.6.2 Solve mathematical and real-world problems involving the measures of arcs and related angles.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • I can teach someone else how to solve mathematical and real-world problems involving the measures of arcs and related angles.	In the diagram, $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are tangent to circle O.  If $m\overset{\frown}{BC} = 139°$, what is $m\angle BAC$?
3	**I understand the entire standard.** • Solve mathematical and real-world problems involving the measures of arcs and related angles.	In the diagram, $\overrightarrow{BA}$ is tangent to circle O at point A.  If $m\overset{\frown}{AD} = 108°$, what is $m\angle ABD$?

Name _____ Date _____

MA.912.GR.6.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Identify relationships between arcs, inscribed angles and central angles.	Match each relationship with one of the diagrams.  **a.** $m\angle 1 = \frac{1}{2}m\angle AOC$ **b.** $m\angle 1 = m\overset{\frown}{AC}$ **c.** $m\angle 1 = 180^\circ - m\angle AOC$
1	**I understand the basic skills needed to begin learning this standard.** • Define arcs, central angles and inscribed angles.	Define each term. **a.** arc **b.** central angle **c.** inscribed angle

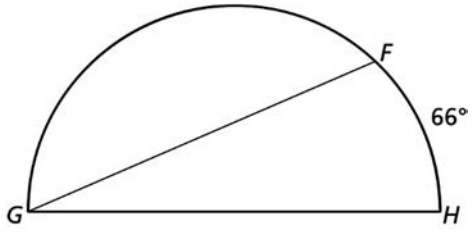
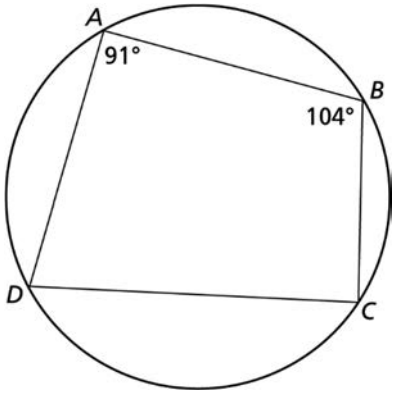
Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

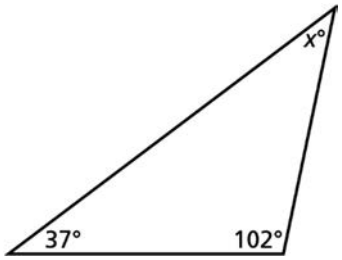
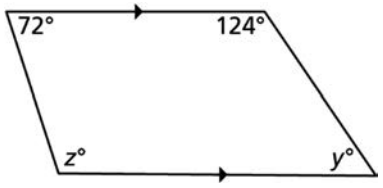
MA.912.GR.6.3 Solve mathematical problems involving triangles and quadrilaterals inscribed in a circle.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else to solve mathematical problems involving triangles and quadrilaterals inscribed in a circle.	Find the missing angle measures. 
3	**I understand the entire standard.** • Solve mathematical problems involving triangles and quadrilaterals inscribed in a circle.	Find the missing angle measures. 

Name _____ Date _____

MA.912.GR.6.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find missing angle measures in triangles and quadrilaterals.	Find the missing angle measures. **a.**  **b.** 
1	**I understand the basic skills needed to begin learning this standard.** • Define inscribed angles and inscribed polygon.	Define each term. **a.** inscribed angle **b.** inscribed polygon

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

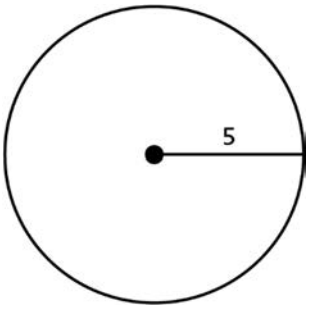
MA.912.GR.6.4 Solve mathematical and real-world problems involving the arc length and area of a sector in a given circle.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Write a word problem involving the arc length or area of a sector in a given circle.	Write a word problem involving the arc length or area of a sector of a circle.
3	**I understand the entire standard.** • Solve mathematical and real-world problems involving the arc length and area of a sector in a given circle.	Circle C has radius 6 centimeters, and $m\overset{\frown}{AB} = 50°$. **a.** Find the length of $\overset{\frown}{AB}$. **b.** Find the area of the sector bounded by $\overset{\frown}{AB}$ and $\angle ACB$.

Name _____ Date _____

MA.912.GR.6.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the circumference and area of a circle.	 **a.** Find the circumference of the circle. **b.** Find the area of the circle.
1	**I understand the basic skills needed to begin learning this standard.** • Define arc length and sector of a circle.	Define the terms. **a.** arc length **b.** sector of a circle

Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

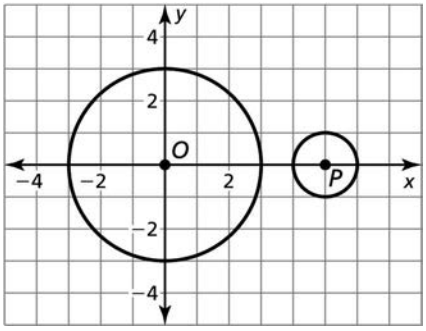
(H) **MA.912.GR.6.5** Apply transformations to prove that all circles are similar.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Create a word problem involving similar circles.	Write a word problem involving similar circles.
3	**I understand the entire standard.** • Apply transformations to prove that all circles are similar.	Use transformations to prove that a circle with center O and radius r is similar to a circle with center P and radius s.

Name _____ Date _____

MA.912.GR.6.5 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Apply transformations to circles.	Describe a series of transformations that will map $\odot O$ onto $\odot P$. 
1	**I understand the basic skills needed to begin learning this standard.** • Define similar figures.	Define *similar figures*.

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.912.GR.7.2 Given a mathematical or real-world context, derive and create the equation of a circle using key features.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Derive and create the equation of a circle given enough information to deduce the key features.	The points (1, 7) and (9, 1) are the endpoints of the diameter of a circle. Write the equation of the circle in standard form.
3	**I understand the entire standard.** • Given a mathematical or real-world context, derive and create the equation of a circle using key features.	Write the equation of a circle with center (2, –4) and radius 3.

Name _____ Date _____

MA.912.GR.7.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the center and radius of a circle given its equation in standard form.	The equation of a circle is shown. $(x - 3)^2 + (y + 5)^2 = 81$ Find the center and radius of the circle.
1	**I understand the basic skills needed to begin learning this standard.** • Write the equation of a circle centered at the origin.	A circle centered at the point (0, 0) has radius 7. Write the equation of the circle in standard form.

Name_____ Date_____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.912.GR.7.3 Graph and solve mathematical and real-world problems that are modeled with an equation of a circle. Determine and interpret key features in terms of the context.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Write a word problem that could be modeled with an equation of a circle.	Write a word problem that can be modeled with the equation of a circle.
3	**I understand the entire standard.** • Graph and solve mathematical and real-world problems that are modeled with an equation of a circle. Determine and interpret key features in terms of the context.	An irrigation system for a form is in the interior of a circle with equation $(x - 250)^2 + (y + 100)^2 = 40{,}000$ What are the domain and range of the equation?

Name _____ Date _____

MA.912.GR.7.3 (continued)

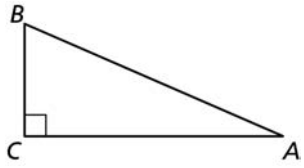
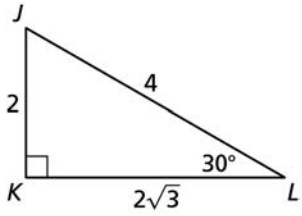
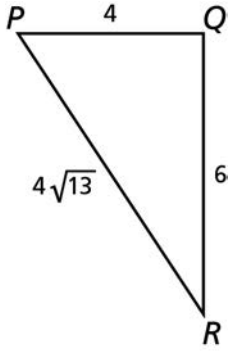
	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the center and radius of a circle from an equation.	What are the center and the radius of the circle with equation $(x + 3)^2 + (y - 7)^2 = 16$?
1	**I understand the basic skills needed to begin learning this standard.** • State the equation of a circle.	Write the equation of a circle with center (h, k) and radius r.

Name_____ Date_____

Evidence-Based Scale Worksheets

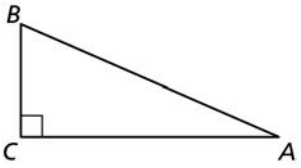
Trigonometry
MA.912.T.1.1 Define trigonometric ratios for acute angles in right triangles.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Explain the relationships between the three trigonometric ratios for the acute angles in a right triangle.	Explain the relationships between the sine, cosine and tangent ratios for angles *A* and *B*. 
3	**I understand the entire standard.** • Define trigonometric ratios for acute angles in right triangles.	Determine the trigonometric ratios for the given angles. **a.** Find sin *L*, cos *L* and tan *L*.  **b.** Find sin *P*, cos *P* and tan *P*. 

Name _____ Date _____

MA.912.T.1.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Identify trigonometry ratios of acute angles in a right triangle.	For each ratio, name the correct trigonometry function. Assume the triangle is a right triangle. **a.** $\frac{\text{adjacent}}{\text{hypotenuse}}$ **b.** $\frac{\text{opposite}}{\text{adjacent}}$ **c.** $\frac{\text{opposite}}{\text{hypotenuse}}$
1	**I understand the basic skills needed to begin learning this standard.** • Identify the parts of a right triangle with regards to ratio.	Identify each side as *adjacent*, *opposite or hypotenuse* with regards to $\angle A$.  **a.** $\overline{AB}$ **b.** $\overline{BC}$ **c.** $\overline{AC}$

Name_____ Date_____

Evidence-Based Scale Worksheets

Trigonometry

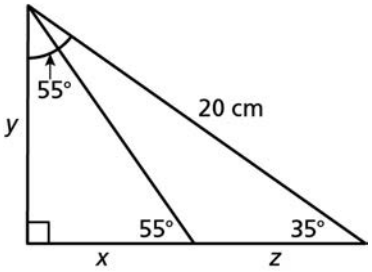
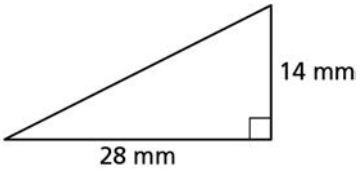
MA.912.T.1.2 Solve mathematical and real-world problems involving right triangles using trigonometric ratios and the Pythagorean Theorem.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Create a real-world problem using trigonometry ratios and the Pythagorean Theorem to solve right triangles.	
3	**I understand the entire standard.** • Use trigonometry ratios and the Pythagorean Theorem to solve real-world problems involving right triangles.	The top of a slide is 15 feet from the ground and has an angle of depression of $46°$. **a.** What is the length of the slide? Round your answer to the nearest hundredth of a foot. **b.** How far is the bottom of the slide to the bottom of the ladder of the slide? Round your answer to the nearest hundredth of a foot.

Name _____ Date _____

MA.912.T.1.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Use trigonometry ratios and the Pythagorean Theorem to solve mathematical problems involving right triangles.	Find the value of x, y and z in the diagram. 
1	**I understand the basic skills needed to begin learning this standard.** • Find the length of the hypotenuse of a right triangle.	Find the length of the hypotenuse. 

Name_____ Date_____

Evidence-Based Scale Worksheets

Trigonometry

H **MA.912.T.1.3** Apply the Law of Sines and the Law of Cosines to solve mathematical and real-world problems involving triangles.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Explain what given information is needed to use the Laws of Sines and Cosines. Explain when there are no possible or two possible triangles based on the given information.	Explain what given information is needed to use the Laws of Sines and Cosines. Explain when there are no possible or two possible triangles based on the given information.
3	**I understand the entire standard.** • Apply the Law of Sines and the Law of Cosines to solve real-world problems involving triangles.	**a.** Two rangers are 10 miles apart when they see the start of a forest fire. Ranger A's sight line with the road is 36°. Ranger B's sight line with the road is 47°. How far is each ranger from the fire? **b.** Two sides of a triangular plot of land are 750 feet and 650 feet. The angle between the sides is 123°. What is the perimeter of the triangular plot of land to the nearest ten feet?

Name _____ Date _____

MA.912.T.1.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Apply the Law of Sines and the Law of Cosines to solve mathematical problems involving triangles.	Find the missing side(s) and angle(s) of the triangle. Round your answers to the nearest hundredth. **a.** $a = 14$, $c = 12$, $A = 35°$ **b.** $a = 10$, $b = 7$, $C = 48°$
1	**I understand the basic skills needed to begin learning this standard.** • Solve problems involving the Pythagorean Theorem.	Find the missing side of the right triangle. Round your answers to the nearest tenth, if necessary. **a.** The legs are 8 centimeters and 12 centimeters. What is the length of the hypotenuse? **b.** The length of one leg is 24 inches and the length of the hypotenuse is 25 inches. What is the length of the other leg?

Name_____ Date_____

Evidence-Based Scale Worksheets

Trigonometry

H **MA.912.T.1.4** Solve mathematical problems involving finding the area of a triangle given two sides and the included angle.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Solve a real-world problem involving finding the area of a triangle given two sides and the included angle.	A triangular garden is built in a community. Two sides of the garden are 45 feet and 36 feet. The angle between the two sides is 71°. What is the area of the garden to the nearest tenth of a foot?
3	**I understand the entire standard.** • Solve mathematical problems involving finding the area of a triangle given two sides and the included angle.	Find the area of each triangle to the nearest tenth. **a.** The length of the two sides are 12 inches and 16 inches. The included angle is 48°. **b.** The length of the two sides are 5 centimeters and 8 centimeters. The included angle is 116°.

Name _____ Date _____

MA.912.T.1.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Determine if the area of a triangle can be found based on the given information.	Determine if the area of a triangle can be found based on the given information. **a.** $a = 21, c = 16, A = 48°$ **b.** $a = 10, c = 32, C = 71°$ **c.** $a = 5, b = 8, c = 12$
1	**I understand the basic skills needed to begin learning this standard.** • Find the area of triangles.	Find the exact area of each triangle. **a.** An equilateral triangle with a side length of 6 centimeters. **b.** An isosceles right triangle with a hypotenuse of 10 inches.

Name_____ Date _____

Evidence-Based Scale Worksheets

Logic and Discrete Theory

MA.912.LT.4.3 Identify and accurately interpret "if…then," "if and only if," "all" and "not" statements. Find the converse, inverse and contrapositive of a statement.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Create conditional statements and write the corresponding converse, inverse and contrapositive statements. Explain and defend the validity of each statement.	Create your own "if . . . then" statement and write the converse, inverse and contrapositive. Determine if the statements are true or false.
3	**I understand the entire standard.** • Find the converse, inverse and contrapositive statements, and accurately interpret the statements.	Write each statement. Determine if the statements are true or false. A square is a rectangle. **a.** Conditional statement **b.** Converse **c.** Inverse **d.** Contrapositive

Name _____ Date _____

MA.912.LT.4.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Identify notation used for conditional, converse, inverse and contrapositive statements.	Identify the notation for each statement. **a.** Conditional statement **b.** Converse **c.** Inverse **d.** Contrapositive
1	**I understand the basic skills needed to begin learning this standard.** • Write conditional statements.	Write a conditional statement for each sentence. **a.** When I ride a bicycle, I wear a helmet. **b.** I live in the state of Florida, which is in the United States.

Name_____ Date_____

Evidence-Based Scale Worksheets

Logic and Discrete Theory

(H) **MA.912.LT.4.8** Construct proofs, including proofs by contradiction.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else the steps required to construct a proof by contradiction.	
3	**I understand the entire standard.** • Construct proofs by contradiction.	Prove the following statement using proof by contradiction. In an isosceles triangle, base angles are congruent.

Name _____ Date _____

MA.912.LT.4.8 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Determine the steps necessary for constructing proofs by contradiction.	Make a plan of how to construct a proof by contradiction. If x is odd and y is even, then xy is even.
1	**I understand the basic skills needed to begin learning this standard.** • Write contradictions for statements.	Write a contradiction for each statement. **a.** In $\triangle XYZ$, if $\angle X$ is a right angle, then the other angles are acute. **b.** If x is an integer and x^2 is odd, then x is odd.

Name_____ Date_____

Evidence-Based Scale Worksheets

Logic and Discrete Theory

MA.912.LT.4.10 Judge the validity of arguments and give counterexamples to disprove statements.

Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Create a mathematical statement that may appear to be always true. Provide at least one counterexample to make the statement false. Rewrite the statement to make it true.	
3	**I understand the entire standard.** • Judge the validity of arguments and give counterexamples to disprove statements.	Give a counterexample for each statement. Rewrite each statement to make it always true. **a.** For three collinear points, A, B, and C then $AB + BC = AC$. **b.** For a regular polygon, the exterior angles are acute.

Name _____ Date _____

MA.912.LT.4.10 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Provide counterexamples to disprove statements.	Give a counterexample to disprove the statement. **a.** Multiplying a whole number by a fraction results in a smaller number. **b.** All quadrilaterals with two pairs of congruent sides are parallelograms.
1	**I understand the basic skills needed to begin learning this standard.** • Identify statements as true or false.	Determine if each statement is true or false. **a.** A quadrilateral with four congruent sides is a square. **b.** An isosceles triangle is also an acute triangle. **c.** A regular polygon has all interior angles that are congruent and all sides that are congruent.