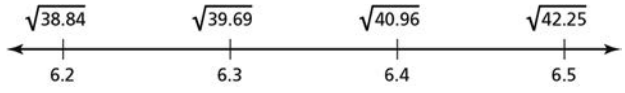
Name _____ Date _____

Evidence-Based Scale Worksheets

Number Sense and Operations

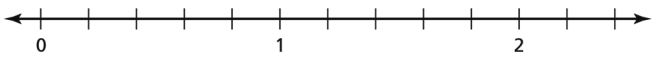
MA.8.NSO.1.1 Extend previous understanding of rational numbers to define irrational numbers within the real number system. Locate an approximate value of a numerical expression involving irrational numbers on a number line.

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

<table>
<tr><th></th><th>Description</th><th>Evidence</th></tr>
<tr><td>4</td><td>I can go beyond the standard.
Teach someone else how to define irrational numbers and locate approximate values of a numerical expression involving irrational numbers on a number line.</td><td></td></tr>
<tr><td>3</td><td>I understand the entire standard.
Define irrational numbers within the real number system.
Locate approximate values of irrational numbers on a number line.
Approximate numerical expressions involving irrational numbers.</td><td>a. Classify each real number.<table><tr><th>Number</th><th>Subset(s)</th><th>Reasoning</th></tr><tr><td>$\sqrt{17}$</td><td></td><td></td></tr><tr><td>π</td><td></td><td></td></tr><tr><td>$-\sqrt{64}$</td><td></td><td></td></tr><tr><td>$\sqrt[3]{27}$</td><td></td><td></td></tr><tr><td>$-0.\overline{13}$</td><td></td><td></td></tr></table>b. Locate $\sqrt{41}$ on a number line and approximate it to the nearest tenth.  c. What is the sum of 2 and $\sqrt{28}$ to the nearest tenth?</td></tr>
</table>

Name _____ Date _____

MA.8.NSO.1.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Locate approximate values of irrational numbers on a number line to the nearest integer.	Locate $\sqrt{41}$ on a number line and approximate it to the nearest integer. 
1	**I understand the basic skills needed to begin learning this standard.** • Write repeating decimals as fractions and mixed numbers. • Locate decimals on a number line.	**a.** Write $0.\overline{5}$ as a fraction or a mixed number. **b.** Write $2.\overline{24}$ as a fraction or a mixed number. **c.** Locate 0.8 and 1.4 on the number line. 

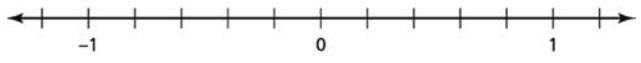
Name _____ Date _____

Evidence-Based Scale Worksheets

Number Sense and Operations

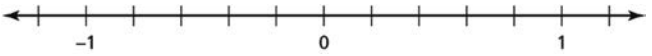
MA.8.NSO.1.2 Plot, order and compare rational and irrational numbers, represented in various forms.

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 plot, order, and compare rational and irrational numbers.	
3	**I understand the entire standard.** • Compare and order rational and irrational numbers using a number line and using the symbols <, >, or =.	**a.** Plot the real numbers using the number line. Then order the numbers from least to greatest. $\frac{3}{5}, 0.\overline{4}, -\frac{2}{3}, 0.8, \frac{6}{5}, -0.2$  **b.** Compare the real numbers using the symbols <, >, or =. $\frac{3}{8} \square \frac{4}{5}$ $-0.4 \square -0.\overline{4}$ $3\pi \square \frac{6\pi}{2}$

Name _____ Date _____

MA.8.NSO.1.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Compare fractions and decimals using <, >, or =.	Compare using the symbols <, >, or =. **a.** $\frac{2}{5} \square \frac{3}{10}$ **b.** $-0.254 \square -0.26$ **c.** $18.5 \square \frac{37}{2}$ **d.** $3\frac{4}{5} \square 3.82$
1	**I understand the basic skills needed to begin learning this standard.** • Plot fractions, decimals, and whole numbers on a number line.	Plot the following numbers on a number line. $\frac{1}{5}, 0.8, -\frac{2}{5}, 1, -0.6$ 

Name _____ Date _____

Evidence-Based Scale Worksheets

Number Sense and Operations

MA.8.NSO.1.3 Extend previous understanding of the Laws of Exponents to include integer exponents. Apply the Laws of Exponents to evaluate numerical expressions and generate equivalent numerical expressions, limited to integer exponents and rational number bases, with procedural fluency.

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

	Description	Evidence
4	**I can go beyond the standard.** • Create and solve a real-world problem involving applying the Laws of Exponents to evaluate numerical expressions.	
3	**I understand the entire standard.** • Apply the Laws of Exponents to evaluate numerical expressions and generate equivalent numerical expressions.	**a.** Evaluate each expression. Write your answer as a fraction or a whole number without exponents. 3^{-2} $\frac{5^6}{5^4}$ $\frac{2^7}{2^9}$ **b.** Select all the expressions that are equivalent to the first expression. $8^3 \cdot 8^0$ $\quad \frac{1}{8^3}, \frac{1}{8^{-3}}, 8^3$ $\frac{12^{-3}}{6^{-3}}$ $\quad \frac{1}{2^{-3}}, 2^{-3}, \frac{1}{2^3}, 2$ $2^4 \cdot 2^{-7}$ $\quad \frac{1}{8}, 8\frac{1}{2^{-3}}, 2^{-3}$

Name _____ Date _____

MA.8.NSO.1.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Apply the Laws of Exponents to evaluate numerical expressions.	Evaluate each expression. Write your answer as a fraction or a whole number without exponents. **a.** 2^{-4} **b.** $\frac{6^8}{6^5}$ **c.** $\frac{5^7}{5^9}$
1	**I understand the basic skills needed to begin learning this standard.** • Apply the Laws of Exponents using whole number exponents to simplify numerical expressions.	Simplify the expression. Write your answer with an exponent. **a.** $3^3 \cdot 3^5$ **b.** $(2^3)^2$ **c.** $\frac{4^5}{4^3}$

Name _____ Date _____

Evidence-Based Scale Worksheets

Number Sense and Operations

MA.8.NSO.1.4 Express numbers in scientific notation to represent and approximate very large or very small quantities. Determine how many times larger or smaller one

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve real-world problems by expressing numbers in scientific notation to represent and approximate very large or very small quantities.	The table shows the number of years since the last three geologic eras began. Write the numbers in scientific notation, and then order the eras from youngest to the oldest. **Era** / **Began** Paleozoic Era — 542,000,000 Cenozoic Era — 65,500,000 Mesozoic Era — 251,000,000
3	**I understand the entire standard.** • Express numbers in scientific notation to represent and approximate very large or very small quantities. • Determine how many times larger or smaller one number is compared to a second number.	**a.** Write the number in scientific notation. 601,000,000 0.000000352 7800 **b.** The diameter of Mercury is about 4.88×10^6 meters. The diameter of the Sun is about 1.4×10^9 meters. How many times greater is the diameter of the Sun than the diameter of Mercury? Round your answer to the nearest whole number.

Name _____ Date _____

MA.8.NSO.1.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Express numbers in scientific notation to represent and approximate very large or very small quantities.	Write the number in scientific notation. **a.** 538,000,000 **b.** 0.00000214 **c.** 325
1	**I understand the basic skills needed to begin learning this standard.** • Multiply whole numbers by powers of 10.	Multiply. **a.** 43×10^3 **b.** 24×10^2 **c.** 672×10^5

Name _____ Date _____

Evidence-Based Scale Worksheets

Number Sense and Operations

MA.8.NSO.1.5 Add, subtract, multiply and divide numbers expressed in scientific notation with procedural fluency.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve real-world problems by adding, subtracting, multiplying, or dividing numbers expressed in scientific notation.	The thickness of a dime is 0.135 cm. The thickness of a dollar bill is 1.09×10^{-2} cm. **a.** How many times greater is the thickness of a dime than the thickness of a dollar bill? **b.** What is the thickness of 200 one-dollar bills? **c.** What is the total thickness of 10 quarters and 10 one-dollar bills? **d.** What is the difference in the thickness between 10 quarters and 10 one-dollar bills?
3	**I understand the entire standard.** • Add and subtract numbers expressed in scientific notation. • Multiply and divide numbers expressed in scientific notation.	**a.** Find the sum or difference. $(6.3 \times 10^{8}) + (5 \times 10^{6})$ $(3.1 \times 10^{-7}) - (2.1 \times 10^{-7})$ $(4 \times 10^{2}) + (9.8 \times 10^{3})$ **b.** Find the product. $(5 \times 10^{-8}) \times (6 \times 10^{10})$ $(2.4 \times 10^{4}) \times (0.08 \times 10^{-6})$ $(4.6 \times 10^{5}) \times (3 \times 10^{9})$ **c.** Find the quotient. $(1.6 \times 10^{-7}) \div (5 \times 10^{-8})$ $(15 \times 10^{4}) \div (3 \times 10^{-5})$ $(2 \times 10^{10}) \div (0.2 \times 10^{6})$

Name _____ Date _____

MA.8.NSO.1.5 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Add and subtract numbers expressed in scientific notation.	Find the sum or difference. **a.** $(5.3 \times 10^9) + (5 \times 10^9)$ **b.** $(6.1 \times 10^{-5}) - (2.5 \times 10^{-5})$ **c.** $(3 \times 10^3) + (9.8 \times 10^2)$
1	**I understand the basic skills needed to begin learning this standard.** • Express numbers in scientific notation to represent and approximate very large or very small quantities.	Write the number in scientific notation. **a.** 451,000,000 **b.** 0.00000000515 **c.** 43,600

Name _____ Date _____

Evidence-Based Scale Worksheets

Number Sense and Operations

MA.8.NSO.1.6 Solve real-world problems involving operations with numbers expressed in scientific notation.

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

	Description	Evidence
4	**I can go beyond the standard.** • Create a word problem and then teach someone how to solve real-world problems involving operations with numbers expressed in scientific notation.	
3	**I understand the entire standard.** • Solve real-world problems involving operations with numbers expressed in scientific notation.	The mass of Earth is about 5.97×10^{24} kg. The mass of the moon is about 7.34×10^{22} kg. **a.** What is the combined mass of Earth and the moon? Express your answer in scientific notation. **b.** How many times as great is the mass of Earth as the mass of the moon? Express your answer in scientific notation.

Name _____ Date _____

MA.8.NSO.1.6 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Add, subtract, multiply, and divide numbers expressed in scientific notation.	Evaluate. **a.** $(5.6 \times 10^3) + (2 \times 10^4)$ **b.** $(5.6 \times 10^3) - (2 \times 10^4)$ **c.** $(5.6 \times 10^3) \times (2 \times 10^4)$ **d.** $(5.6 \times 10^3) \div (2 \times 10^4)$
1	**I understand the basic skills needed to begin learning this standard.** • Add, subtract, multiply, and divide very large and very small numbers and express the answers in scientific notation.	Simplify. Write your answer in scientific notation. **a.** 600,000,000 + 50,000,000 **b.** 0.000000479 – 0.000000055 **c.** 10,100 × 5000 **d.** 68 ÷ 0.0002

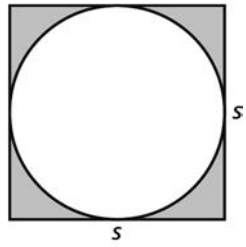
Name _____ Date _____

Evidence-Based Scale Worksheets

Number Sense and Operations

MA.8.NSO.1.7 Solve multi-step mathematical and real-world problems involving the order of operations with rational numbers including exponents and radicals.

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

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone how to solve multi-step mathematical and real-world problems involving the order of operations with rational numbers including exponents and radicals.	
3	**I understand the entire standard.** • Solve multi-step mathematical and real-world problems involving the order of operations with rational numbers including exponents and radicals.	**a.** Simplify. $10 + \frac{1}{5} \times \sqrt{(3^2 + 4^2)}$ $12 + \frac{\sqrt[3]{64}}{2} \div \left(-\frac{1}{4}\right)^2$ $\frac{(3^2 \cdot 12 - 12)}{\sqrt[3]{125} - 1} \times \frac{3}{4}$ **b.** The floor of a square room has an area of 196 square feet. A circular rug is placed on the floor from edge to edge as shown. What is the area of the floor not covered by the circular rug? Use $\frac{22}{7}$ for π. Show your work. 

Name _____ Date _____

MA.8.NSO.1.7 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Solve multi-step mathematical problems involving the order of operations with rational numbers including exponents and radicals.	Simplify. **a.** $8 + \frac{1}{4} \times \sqrt{144}$ **b.** $8 + \frac{\sqrt{64}}{2} \div \left(-\frac{1}{2}\right)^2$ **c.** $\frac{(8^2 \cdot 13 - 12)}{\sqrt[3]{64}} \times \frac{3}{4}$
1	**I understand the basic skills needed to begin learning this standard.** • Solve mathematical problems involving the order of operations including parentheses and positive exponents.	Simplify. **a.** $(2^2 \cdot 20 - 16) \div 16$ **b.** $24 - (2^3 + 1) \div (3^3 - 12 \cdot 2)$ **c.** $(9 \cdot 4 + 2 \cdot 6) \times (6 - 2^2)$

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.1.1 Apply the Laws of Exponents to generate equivalent algebraic expressions, limited to integer exponents and monomial bases.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve word problems by applying the Laws of Exponents to generate equivalent algebraic expressions.	**a.** A warehouse contains 6^5 containers. Each container weighs 6^3 pounds. How much is the combined weight of all of the containers? **b.** A farm has 8^4 pigs. If all of the pigs weigh a total of 8^6 pounds, what is the average weight of each pig?
3	**I understand the entire standard.** • Apply the Laws of Exponents to generate equivalent algebraic expressions.	Simplify the expression. **a.** $5x^4y^{-2} \cdot (-3x^6y^9)$ **b.** $\frac{6^{15}y^{45}}{6^{12}y^{40}}$ **c.** $(x^4y^2)^3$ **d.** $(2a)^3$ **e.** $\left(\frac{2x}{3y^2}\right)^3$ **f.** $(2x)^{-3}$ **g.** $(12x)^1$ **h.** $(-6p^2q^{-3})^0$

Name _____ Date _____

MA.8.AR.1.1 (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.
• Apply the Product of Powers Property, Quotient of Powers Property, and Power of a Power Property.</td><td>Simplify the expression.
a. $3x^5 \cdot 6x^3$
b. $\frac{2^6y^{15}}{2^2y^{14}}$
c. $(x^2y^2)^2$</td></tr>
<tr><td>1</td><td>I understand the basic skills needed to begin learning this standard.
• Identify the Laws of Exponents.</td><td>Match the example on the right with the Law of Exponents on the left.
<table><tr><td>a. Product of Powers Property</td><td>1. $(a^m)^n = a^{m \cdot n}$</td></tr><tr><td>b. Quotient of Powers Property</td><td>2. $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$</td></tr><tr><td>c. Power of a Power Property</td><td>3. $a^0 = 1$</td></tr><tr><td>d. Power of a Product Property</td><td>5. $a^m \cdot a^n = a^{m+n}$</td></tr><tr><td>e. Power of a Quotient Property</td><td>6. $(ab)^m = a^m \cdot b^m$</td></tr><tr><td>f. Negative exponent</td><td>7. $a^{-1} = \frac{1}{a}$; $\left(\frac{a}{b}\right)^{-1} = \frac{b}{a}$</td></tr><tr><td>g. Zero exponent</td><td>8. $\frac{a^m}{a^n} = a^{m-n}$</td></tr></table></td></tr>
</table>

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.1.2 Apply properties of operations to multiply two linear expressions with rational coefficients.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve word problems by applying properties of operations to multiply two linear expressions with rational coefficients.	A rectangle has a length of $(5 + 2.4x)$ and a width of $5.3x$. **a.** What is the area of the rectangle? **b.** What is the perimeter of the rectangle?
3	**I understand the entire standard.** • Apply properties of operations to multiply two linear expressions with rational coefficients.	Find the product. **a.** $-3.2x \cdot (-8 - 6.1x)$ **b.** $0.3x \cdot (2 - 12.3x)$ **c.** $\frac{2}{3}x \cdot (-12 - 6x)$

Name_____ Date _____

MA.8.AR.1.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Multiply two linear expressions.	Find the product. **a.** $3x \cdot (-8 - 6x)$ **b.** $-2x \cdot (2 - 10x)$ **c.** $-x \cdot (-4 - 6x)$
1	**I understand the basic skills needed to begin learning this standard.** • Add and subtract expressions.	Find the sum or difference. **a.** $5x + (-8 - 15x)$ **b.** $2x - (6x - 4x - 3)$ **c.** $-x + (-4 + 2x)$

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.1.3 Rewrite the sum of two algebraic expressions having a common monomial factor as a common factor multiplied by the sum of two algebraic expressions.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve word problems by rewriting the sum of two algebraic expressions having a common monomial factor multiplied by the sum of two algebraic expressions.	A farmer wants to put a fence around a rectangular field that is 120 yards wide and has an area of $(120x + 14{,}400)$ square yards. **a.** Write an expression to represent the length of the field. **b.** Write an expression that represents the amount of fencing the farmer needs to completely surround the field, then factor the expression using the GCF.
3	**I understand the entire standard.** • Rewrite the sum of two algebraic expressions having a common monomial factor as a common factor multiplied by the sum of two algebraic expressions.	Factor each expression using the GCF. **a.** $-8x^4 - 6x^2$ **b.** $16y^5 - 24y^3$ **c.** $49 - 35x$

Name _____ Date _____

MA.8.AR.1.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the greatest common factor of algebraic expressions.	Find the GCF of the expression. **a.** $3x^2 + 12x$ **b.** $-2x - 10x$ **c.** $-12 - 6x$
1	**I understand the basic skills needed to begin learning this standard.** • Find the greatest common factor.	Find the GCF. **a.** 18, 24 **b.** 20, 50 **c.** 48, 144

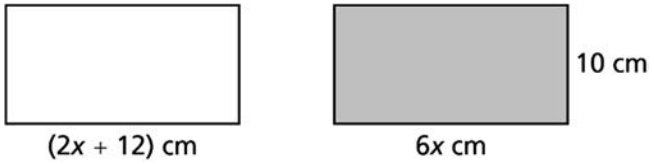
Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.2.1 Solve multi-step linear equations in one variable, with rational number coefficients. Include equations with variables on both sides.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve word problems that involve multi-step linear equations in one variable, with rational number coefficients.	The figures are congruent.  **a.** What is the area of each figure? **b.** What is the perimeter of each figure?
3	**I understand the entire standard.** • Solve multi-step linear equations in one variable, with rational number coefficients.	Solve the equation, if possible. **a.** $-3(x-4) = -3x + 30$ **b.** $-0.3x + 4 = 3.2x + 11$ **c.** $8x + 3x + 9 = 16x + 14$

Name _____ Date _____

MA.8.AR.2.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Solve multi-step equations.	Solve the equation. **a.** $3x + 12 = 21$ **b.** $-5x + 15 = -30$ **c.** $\frac{x}{4} - 8 = -5$
1	**I understand the basic skills needed to begin learning this standard.** • Solve one-step equations.	Solve the equation. **a.** $6x = -24$ **b.** $x + 8 = -2$ **c.** $\frac{x}{-3} = 12$

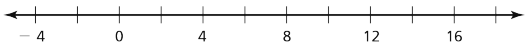
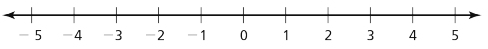
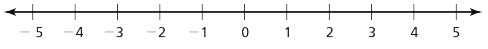
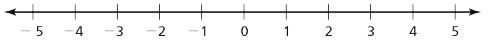
Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

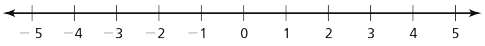
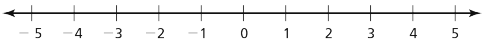
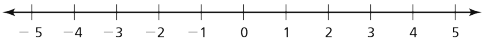
MA.8.AR.2.2 Solve two-step linear inequalities in one variable and represent solutions algebraically and graphically.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve two-step linear inequalities in one variable and represent solutions algebraically and graphically.	You are saving money to buy a new bicycle that costs \$325. You have \$50 and are saving \$25 a week. **a.** Write and solve an inequality that shows how many weeks w you need to save until you can buy the new bicycle. **b.** Graph the solution to the inequality on the number line. 
3	**I understand the entire standard.** • Solve two-step linear inequalities in one variable and represent solutions algebraically and graphically.	Solve the inequality and graph the solution on the number line. **a.** $-3(x-4) \geq 24$  **b.** $5x + 3 < 13$  **c.** $4x + 3x + 9 \geq 23$ 

Name_____ Date _____

MA.8.AR.2.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Solve two-step linear inequalities in one variable.	Solve the inequality. **a.** $5x + 16 < 31$ **b.** $-3x + 12 \geq -18$ **c.** $\frac{x}{2} - 10 > -2$
1	**I understand the basic skills needed to begin learning this standard.** • Graph inequalities.	Graph the inequality on the number line. **a.** $x \leq 3$  **b.** $x > 2$  **c.** $x \geq -4$ 

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.2.3 Given an equation in the form of $x^2 = p$ and $x^3 = q$, where p is a whole number and q is an integer, determine the real solutions.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve word problems leading to equations in the form of $x^2 = p$ and $x^3 = q$.	**a.** A square has an area of 169 square centimeters. Write and solve an equation to determine the length of the side *s* of the square. **b.** A cube has a volume of 125 cubic meters. Write and solve an equation to determine the length of the side *s* of the cube.
3	**I understand the entire standard.** • Solve equations in the form of $x^2 = p$ and $x^3 = q$.	Solve each equation. **a.** $x^2 = 16$ **b.** $3x^2 = 588$ **c.** $x^3 = -64$ **d.** $\frac{1}{5}x^3 = -25$

Name _____ Date _____

MA.8.AR.2.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find square and cube roots.	Find the square root(s). **a.** $-\sqrt{81}$ **b.** $\pm\sqrt{\frac{16}{144}}$ Find each cube root. **c.** $\sqrt[3]{\frac{-27}{64}}$ **d.** $\sqrt[3]{\frac{8}{125}}$
1	**I understand the basic skills needed to begin learning this standard.** • Find square roots.	Find the two square roots of the number. **a.** 16 **b.** 100 **c.** 196

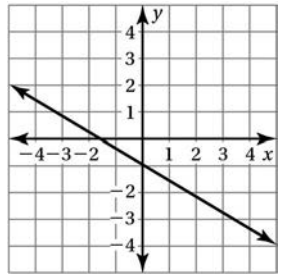
Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.3.1 Determine if a linear relationship is also a proportional relationship.

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

	Description	Evidence
4	**I can go beyond the standard.** • Determine if real-world situations are in a proportional relationship.	Determine if each situation represents a proportional relationship. Justify your reasoning. **a.** Newton earns \$12 for every hour worked. **b.** A car travels at a constant speed of 55 miles per hour. **c.** The total cost for a ride share is 50 cents per mile plus \$5.
3	**I understand the entire standard.** • Determine if a linear relationship is also a proportional relationship.	Determine if the equation, graph, or table is a proportional relationship. Justify your reasoning. **a.** $y = 3x$ **b.** | ***x*** | 0 | 2 | 4 | 6 | | ***y*** | 0 | 1 | 2 | 3 | **c.** 

Name _____ Date _____

MA.8.AR.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.
Graph linear relationships and proportional relationships.</td><td>Graph the linear equation.
a. $y = -2x$

b. $y = \frac{2}{3}x - 2$</td></tr>
<tr><td>1</td><td>I understand the basic skills needed to begin learning this standard.
Plot points from a table on a coordinate plane.</td><td>Plot the points on a coordinate plane.
a.<table><tr><td>x</td><td>0</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>y</td><td>0</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table>
b.<table><tr><td>x</td><td>–4</td><td>–2</td><td>0</td><td>2</td><td>4</td></tr><tr><td>y</td><td>1</td><td>0</td><td>–1</td><td>–2</td><td>–3</td></tr></table></td></tr>
</table>

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.3.2 Given a table, graph or written description of a linear relationship, determine the slope.

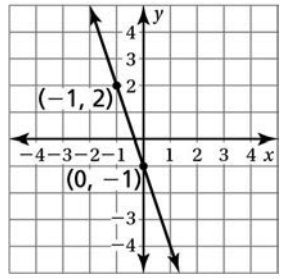
Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Find the slope of a line from a real-world situation.	The situation can be represented by a linear equation. Find the slope of the line. **a.** A plumber charges $25 for a service call, plus $50 per hour of service. **b.** A canoe rental service charges a $20 transportation fee and $30 each hour to rent a canoe. **c.** A streaming service charges a monthly fee of $40 and a fee of $2.99 for every movie downloaded.
3	**I understand the entire standard.** • Find the slope given a table, graph, or written description.	Find the slope of the line that passes through the given points. **a.** **b.** **c.** Find the slope of a line that passes through $(-6, 1)$ and $(2, -3)$.

a.

x	–4	–2	0	2	4
y	0	$\frac{1}{2}$	1	$1\frac{1}{2}$	2

b.



Name _____ Date _____

MA.8.AR.3.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the slope given an equation of a line.	Find the slope of the graph of each linear equation. **a.** $y = 6x$ **b.** $y = -\frac{1}{4}x - 8$ **c.** $y = -2x + 3$
1	**I understand the basic skills needed to begin learning this standard.** • Graph linear relationships.	Graph each linear equation. **a.** $y = 3x + 2$ **b.** $y = -\frac{3}{5}x - 1$

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.3.3 Given a table, graph or written description of a linear relationship, write an equation in slope-intercept form.

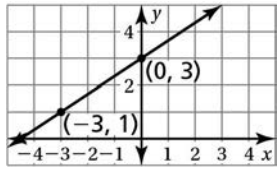
Circle the scale that best demonstrates your knowledge of the standard.

	Description	Evidence
4	**I can go beyond the standard.** • Write an equation in slope-intercept form from a real-world situation.	Write an equation in slope-intercept form for each situation. **a.** A plumber charges $15 for a service call, plus $45 per hour of service. What is the total cost *y* for a service call that lasts *x* hours? **b.** A water tank with 600 gallons of water leaks 8.5 gallons of water every hour. What is the total amount of water *y* in the tank after *x* hours? **c.** Newton has –$62 in his bank account. He puts $10 in his account each week. What is the total amount of money *y* in Newton's bank account after *x* weeks?
3	**I understand the entire standard.** • Write an equation in slope-intercept form given a table, graph, or written description.	Write an equation in slope-intercept form of the line that passes through the given points. **a.** **b.** **c.** A line has a slope of 2 and a *y*-intercept of –12. Write an equation of the line in slope-intercept form.

a.

x	–3	0	3	6
y	0	–1	–2	–3

b.



Name _____ Date _____

MA.8.AR.3.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Write an equation in slope-intercept form given a written description.	Write an equation in slope-intercept form of the line that has the given slope and *y*-intercept. **a.** A line has a slope of 1 and a *y*-intercept of 0. **b.** A line has a slope of $\frac{2}{9}$ and a *y*-intercept of -3. **c.** A line has a slope of 14 and a *y*-intercept of 8.
1	**I understand the basic skills needed to begin learning this standard.** • Write an equation in slope-intercept form given the slope *m* and *y*-intercept *b*.	Write an equation in slope-intercept form of the line that has the given slope *m* and *y*-intercept *b*. **a.** $m = 4, b = -2$ **b.** $m = -\frac{1}{2}, b = -8$ **c.** $m = \frac{2}{5}, b = 10$

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.3.4 Given a mathematical or real-world context, graph a two-variable linear equation from a written description, a table or an equation in slope-intercept form.

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

	Description	Evidence
4	**I can go beyond the standard.** • Teach a person how to graph a two-variable linear equation from a written description, a table, or an equation in slope-intercept form.	
3	**I understand the entire standard.** • Graph a two-variable linear equation from a written description, a table, or an equation in slope-intercept form given a mathematical or real-world context.	Graph the linear equation represented by the table, equation, or situation. **a.** ***x*** –2 0 1 2 ***y*** –4 0 2 4 **b.** $y = -\frac{1}{2}x - 2$ **c.** The water level of a river is 12 feet and recedes 0.25 foot per day.

Name _____ Date _____

MA.8.AR.3.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Graph a two-variable linear equation.	Graph $y = 3x - 4$.
1	**I understand the basic skills needed to begin learning this standard.** • Graph a linear equation that is represented by a table.	Graph the linear equation represented by the table. ***x*** –4 –2 0 2 4 ***y*** 5 4 3 2 1

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

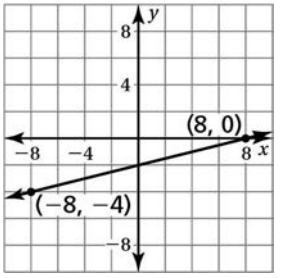
MA.8.AR.3.5 Given a real-world context, determine and interpret the slope and y-intercept of a two-variable linear equation from a written description, a table, a graph or an equation in slope-intercept form.

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

	Description	Evidence
4	**I can go beyond the standard.** • Write an equation given a real-world context and then interpret the slope and *y*-intercept.	A student charges $10 to mow a lawn, plus $2.50 per hour. **a.** Write an equation to represent this situation. **b.** Interpret the slope and *y*-intercept.
3	**I understand the entire standard.** • Determine and interpret the slope and y-intercept in a real-world context of a two-variable linear equation from a written description, a table, a graph, or an equation in slope-intercept form.	A salesperson makes a weekly salary of $125 in addition to earning a commission of $5.50 on every sale made. An equation to represent this situation is $y = 5.5x + 125$. Interpret the slope and *y*-intercept.

Name _____ Date _____

MA.8.AR.3.5 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Interpret the slope and *y*-intercept given a linear equation.	Interpret the slope and *y*-intercept from the equation. $y = -4x + 13$
1	**I understand the basic skills needed to begin learning this standard.** • Identify the slope and *y*-intercept from a table, graph, or equation.	Identify the slope and *y*-intercept of the linear equation represented by the equation, graph, or table. **a.** $y = -3x + 15$ **b.**  **c.** | ***x*** | –2 | –1 | 0 | 1 | 2 | | ***y*** | –10 | –2 | 3 | 8 | 13 |

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.4.1 Given a system of two linear equations and a specified set of possible solutions, determine which ordered pairs satisfy the system of linear equations.

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

	Description	Evidence
4	**I can go beyond the standard.** • Write a system of linear equations with a given solution.	Write a system of linear equations with the solution $(4, -3)$.
3	**I understand the entire standard.** • Determine which ordered pair satisfies a system of two linear equations.	Tell whether the ordered pair is a solution of the system of linear equations. **a.** $(1, 1)$; $y = -3x + 4$ $y = 3x - 2$ **b.** $(-2, 2)$; $y = -4x + 2$ $y = x + 4$ **c.** $(2, 1)$; $y = -x + 3$ $y = 3x - 5$

Name _____ Date _____

MA.8.AR.4.1 (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.
• Complete an input-output table for a linear equation.</td><td>Complete the table for the given linear equation.
$y = -6x - 8$
<table><tr><th>x</th><th>y</th></tr><tr><td>–5</td><td></td></tr><tr><td>–1</td><td></td></tr><tr><td>0</td><td></td></tr><tr><td>3</td><td></td></tr><tr><td>6</td><td></td></tr></table></td></tr>
<tr><td>1</td><td>I understand the basic skills needed to begin learning this standard.
• Evaluate algebraic expressions given values of their variables.</td><td>Evaluate each expression when $a = 3$, $b = 2$, and $c = -1$.
a. $3a - 2b + c$
b. $5(a - c) + 6b$
c. $\frac{15b+6c}{2a}$</td></tr>
</table>

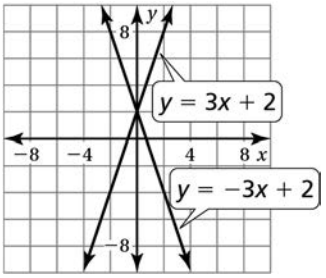
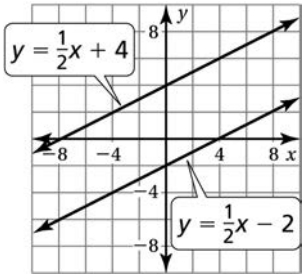
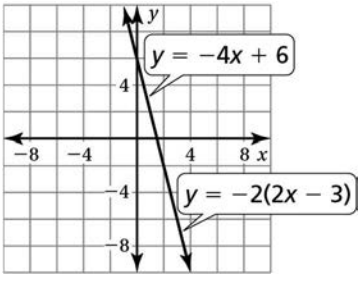
Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

MA.8.AR.4.2 Given a system of two linear equations represented graphically on the same coordinate plane, determine whether there is one solution, no solution or infinitely many solutions.

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

	Description	Evidence
4	**I can go beyond the standard.** • Create and graph systems of linear equations with one solution, no solutions, and infinitely many solutions.	
3	**I understand the entire standard.** • Determine whether there is one solution, no solution, or infinitely many solutions to a system of two linear equations represented graphically on the same coordinate plane.	Tell whether there is one solution, no solution, or infinitely many solutions to the system linear equations. **a.** $y = 3x + 2$ $y = -3x + 2$  **b.** $y = \frac{1}{2}x + 4$ $y = \frac{1}{2}x - 2$  **c.** $y = -4x + 6$ $y = -2(2x - 3)$ 

Name _____ Date _____

MA.8.AR.4.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Determine whether an ordered pair satisfies a system of two linear equations.	Tell whether the ordered pair is a solution of the system of linear equations. **a.** $(-2, -4)$; $y = -x - 6$ $y = 3x + 2$ **b.** $(4, -10)$; $y = x + 14$ $y = 2x - 18$ **c.** $(2, 3)$; $y = \frac{1}{2}x + 2$ $y = x + 1$
1	**I understand the basic skills needed to begin learning this standard.** • Complete an input-output table for a linear equation.	Complete the table for the given linear equation. $y = -\frac{1}{2}x + 4$

x	*y*
–6	
–2	
0	
4	
8	

Name _____ Date _____

Evidence-Based Scale Worksheets

Algebraic Reasoning

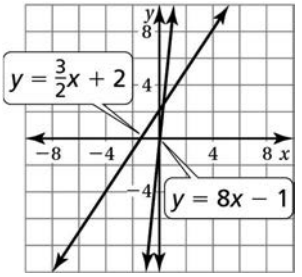
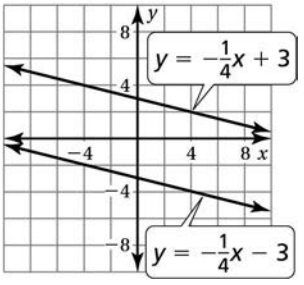
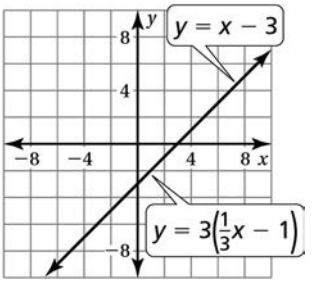
MA.8.AR.4.3 Given a mathematical or real-world context, solve systems of two linear equations by graphing.

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

	Description	Evidence
4	**I can go beyond the standard.** • Create and graph systems of linear equations in a real-world context and graph the solution.	
3	**I understand the entire standard.** • Solve a system of two linear equations by graphing.	Newton reads a math riddle: There are two numbers. The sum of the first number and twice the second number is 14. When the second number is subtracted from the first number, the result is 2. The system of equations is: $y = -\frac{1}{2}x + 7$ $y = x - 2$ Where *x* represents the first number and *y* represents the second number. Graph the system of equations to find the two numbers.

Name _____ Date _____

MA.8.AR.4.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Determine whether there is one solution, no solution, or infinitely many solutions to a system of two linear equations represented graphically on the same coordinate plane.	Tell whether there is one solution, no solution, or infinitely many solutions to the system linear equations. **a.** $y = \frac{3}{2}x + 2$ $y = 8x - 1$  **b.** $y = -\frac{1}{4}x + 3$ $y = -\frac{1}{4}x - 3$  **c.** $y = x - 3$ $y = 3\left(\frac{1}{3}x - 1\right)$ 
1	**I understand the basic skills needed to begin learning this standard.** • Determine whether an ordered pair satisfies a system of two linear equations.	Tell whether the ordered pair is a solution of the system of linear equations. **a.** $(1, 7)$; $y = 5x + 2$ $y = -x + 8$ **b.** $(-4, 5)$; $y = -3x - 7$ $y = x + 9$ **c.** $(1, 12)$; $y = 8x + 4$ $y = 3x - 15$

Name _____ Date _____

Evidence-Based Scale Worksheets

Functions

MA.8.F.1.1 Given a set of ordered pairs, a table, a graph or mapping diagram, determine whether the relationship is a function. Identify the domain and range of the relation.

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

	Description	Evidence
4	**I can go beyond the standard.** • Create a graph that shows a relationship that is a function and one that is not a function. Identify the domain and range of each relation.	
3	**I understand the entire standard.** • Determine whether a relation is a function. • Identify the domain and range of a relation.	Determine whether the table or relation represents a function. Explain why or why not. Identify the domain and range of the relation. **a.** x: –4, –2, 0, 2, 4, 6, 8, 10 y: 3, 5, 7, 5, 3, 1, –1, –3 **b.** {(2, 4), (4, 2), (2, 2), (4, 4), (0, 2), (4, 0)}

Name _____ Date _____

MA.8.F.1.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Identify the domain and range of a relation.	Identify the domain and range of the relation. **a.** x: –6, –4, –2, 0, 0, –2, –4, –6 y: 8, 6, 4, 2, 2, 4, 6, 8 **b.** {(–5, 5), (–3, 3), (–1, 1), (1, –1), (3, –3), (5, –5)}
1	**I understand the basic skills needed to begin learning this standard.** • Define *input* and *output*.	Define *input* and *output*. input output

Name _____ Date _____

Evidence-Based Scale Worksheets

Functions

MA.8.F.1.2 Given a function defined by a graph or an equation, determine whether the function is a linear function. Given an input-output table, determine whether it could represent a linear function.

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

	Description	Evidence
4	**I can go beyond the standard.** • Create a graph that shows a relation that is a linear function and one that is not a linear function. Identify the domain and range of each relation.	
3	**I understand the entire standard.** • Determine whether a given input-output table could represent a linear function.	Determine whether each table represents a linear or nonlinear function. Explain your reasoning. **a.** b.

a.

x	–2	–1	0	1	2	3
y	–1	1	3	5	7	9

b.

x	–2	–1	0	1	2	3
y	0	3	4	3	0	-5

Name _____ Date _____

MA.8.F.1.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Given a function defined by an equation, determine whether the function is a linear function.	Determine whether each equation represents a linear or nonlinear function. Explain your reasoning. **a.** $y = 4$ **b.** $y = 4x + 1$ **c.** $y = 4x^2 + 1$
1	**I understand the basic skills needed to begin learning this standard.** • Define *linear function* and *nonlinear function*.	Define *linear function* and *nonlinear function*. linear function nonlinear function

Name _____ Date _____

Evidence-Based Scale Worksheets

Functions

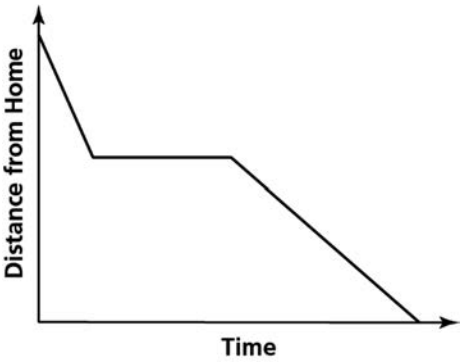
MA.8.F.1.3 Analyze a real-world written description or graphical representation of a functional relationship between two quantities and identify where the function is increasing, decreasing or constant.

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

	Description	Evidence
4	**I can go beyond the standard.** • Write a real-world problem that involves sketching a graph of a function given a verbal description.	
3	**I understand the entire standard.** • Analyze a real-world written description of a functional relationship between two quantities and identify where the function is increasing, decreasing, or constant.	Describe where the function is increasing, decreasing, or constant. A runner starts running from home, increasing her speed at a constant rate. The runner decreases her speed at a constant rate until stopping at an intersection. The runner waits for traffic to clear the intersection, then gains speed at a faster constant rate. Then the runner maintains the rate until arriving at a park.

Name _____ Date _____

MA.8.F.1.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Analyze a graphical representation of a functional relationship between two quantities and identify where the function is increasing, decreasing, or constant.	Describe where the function is increasing, decreasing, or constant. A family is driving in a car coming home from a trip. 
1	**I understand the basic skills needed to begin learning this standard.** • Describe when a function is increasing, decreasing, or constant.	Describe when a function is increasing, decreasing, or constant.

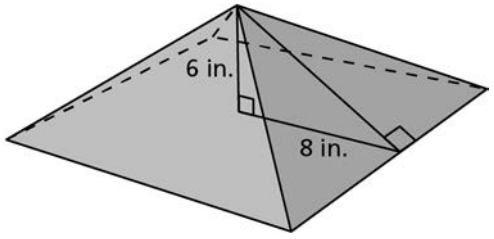
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

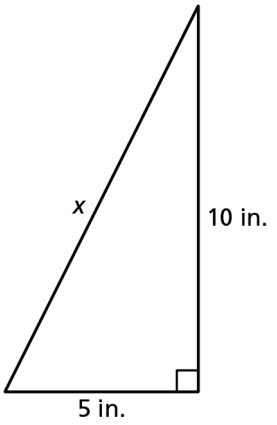
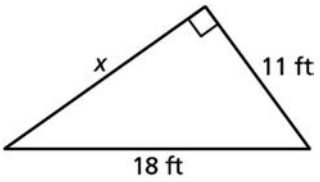
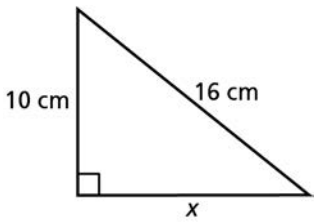
MA.8.GR.1.1 Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.

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

	Description	Evidence
4	**I can go beyond the standard.** • Create and solve a problem involving the Pythagorean Theorem.	
3	**I understand the entire standard.** • Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.	**a.** The distance from the base of the ladder of a playground slide to where the slide hits the ground is 12 feet. The distance from the base of the ladder to the top of the slide is 8 feet. How long is the slide? Round your answer to the nearest tenth of a foot. **b.** Newton has a square pyramid-shaped paper weight that is 6 inches tall and has a side length of 16 inches as shown. What is the slant height, h, of the square pyramid? 

Name _____ Date _____

MA.8.GR.1.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Apply the Pythagorean Theorem to solve mathematical problems involving unknown side lengths in right triangles.	Find the missing length of the right triangle. Round your answer to the nearest tenth. **a.**  **b.**  **c.** 
1	**I understand the basic skills needed to begin learning this standard.** • Solve equations using square roots.	Solve each equation. State the positive solution only. **a.** $3a^2 = 75$ **b.** $6a^2 - 12 = 204$ **c.** $12a^2 + 30 = 1758$

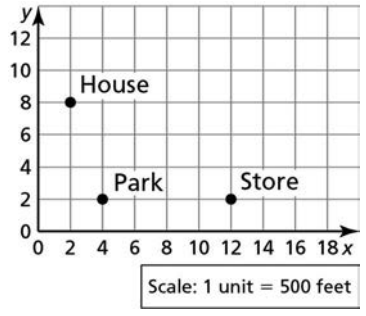
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

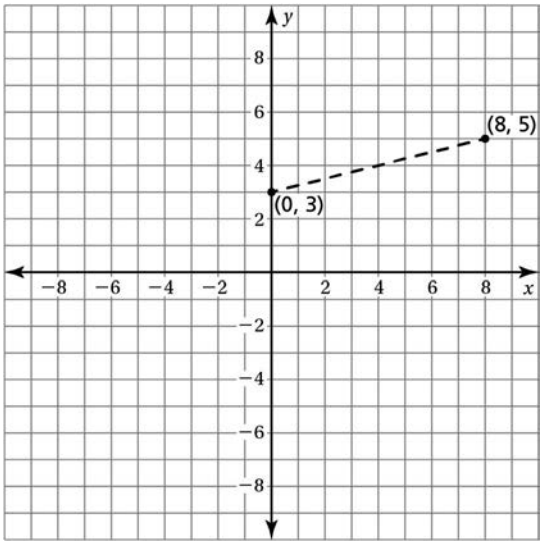
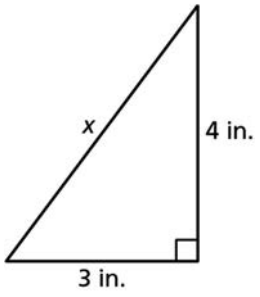
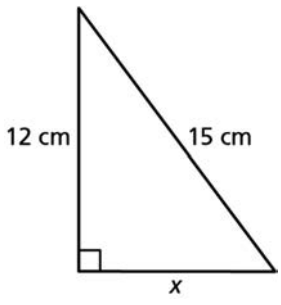
MA.8.GR.1.2 Apply the Pythagorean Theorem to solve mathematical and real-world problems involving the distance between two points in a coordinate plane.

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

	Description	Evidence
4	**I can go beyond the standard.** • Teach someone how to apply the Pythagorean Theorem to solve real-world problems involving the distance between two points in a coordinate plane.	
3	**I understand the entire standard.** • Apply the Pythagorean Theorem to solve mathematical and real-world problems involving the distance between two points in a coordinate plane.	**a.** Point A is located at (–4, 6) and Point B is located at (8, 0) in the coordinate plane. What is the distance between the two points? Round your answer to the nearest tenth of a unit. **b.** Descartes walks from his house in a straight line directly to the store. He then walks from the store in a straight line directly to the park. He then walks from the park in a straight line directly to his house. How many feet did he walk in all? 

Name _____ Date _____

MA.8.GR.1.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Apply the Pythagorean Theorem to solve mathematical problems involving the distance between two points in a coordinate plane.	Find the distance between the points. Round your answer to the nearest tenth. 
1	**I understand the basic skills needed to begin learning this standard.** • Apply the Pythagorean Theorem to solve mathematical problems.	Find the missing length in the triangle. **a.**  **b.** 

Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.8.GR.1.3 Use the Triangle Inequality Theorem to determine if a triangle can be formed from a given set of sides. Use the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of sides.

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 using the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of side lengths.	Two joggers start at point *A* and run 8 miles due north. They stop and rest at point *B*. Next, they run 6 miles due west and rest at point *C*. The joggers then run 9 miles to return directly to point *A* from point *C*. Did the entire path the joggers took form a right triangle? Explain your answer.
3	**I understand the entire standard.** • Use the Triangle Inequality Theorem to determine if a triangle can be formed from a given set of side lengths, and use the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of side lengths.	Determine if the side lengths form a triangle. Justify your answer. **a.** 4 ft, 8 ft, 13 ft **b.** 53 mm, 60 mm, 100 mm **c.** 5 in., 12 in., 13 in. **d.** Is a triangle with side lengths of 6 centimeters, 8 centimeters, and 10 centimeters a right triangle? Justify your answer.

Name _____ Date _____

MA.8.GR.1.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Use the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of side lengths.	Determine if the side lengths form a right triangle. Justify your answer. **a.** 9 in., 12 in., 15 in. **b.** 8 cm, 15 cm, 17 cm **c.** 2 m, 3 m, 4 m
1	**I understand the basic skills needed to begin learning this standard.** • Use the Triangle Inequality Theorem to determine if a triangle can be formed from a given set of side lengths.	Determine if the side lengths form a triangle. Justify your answer. **a.** 12 in., 8 in., 16 in. **b.** 7 cm, 9 cm, 17 cm **c.** 5 m, 6 m, 8 m

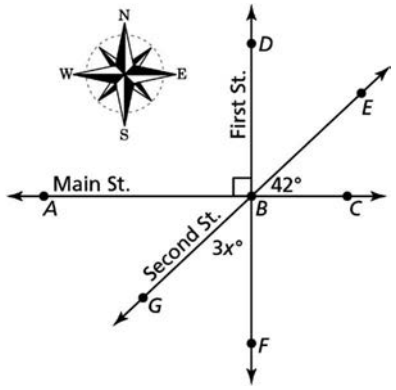
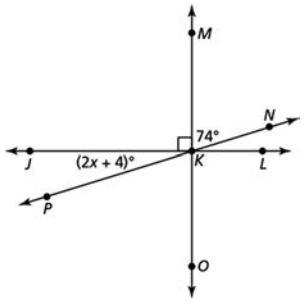
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

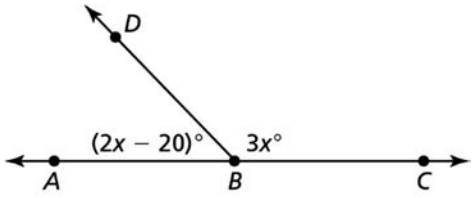
MA.8.GR.1.4 Solve mathematical problems involving the relationships between supplementary, complementary, vertical or adjacent angles.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve real-world problems involving the relationships between supplementary, complementary, vertical, or adjacent angles.	The diagram shows the intersection of Main Street, First Street, and Second Street.  **a.** What is the measure of $\angle DBE$? **b.** What is the value of x? **c.** What is the measure of $\angle ABG$? **d.** A truck going east on Main St. toward First St. needs to make a turn that is between 100° and 140°. Which street in which direction does the truck need to take to make the turn? Why?
3	**I understand the entire standard.** • Solve mathematical problems involving the relationships between supplementary, complementary, vertical, or adjacent angles.	Use the diagram to answer the questions.  **a.** Name a pair of adjacent, complementary, supplementary, and vertical angles. **b.** What is the value of x? **c.** What is the measure of $\angle LKP$?

Name _____ Date _____

MA.8.GR.1.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Solve mathematical problems involving the relationships between supplementary and complementary angles.	**a.** What is the complement of an angle that measures 33°? **b.** What is the supplement of an angle that measures 126°? **c.** $\angle ABD$ and $\angle DBC$ are supplementary. Solve for x. Check your work. 
1	**I understand the basic skills needed to begin learning this standard.** • Identify complementary and supplementary angles.	Determine if the angles are complementary. Justify your answer. **a.** The measure of $\angle 1$ is $42°$ and the measure of $\angle 2$ is $58°$. **b.** The measure of $\angle 1$ is $61°$ and the measure of $\angle 2$ is $29°$. Determine if the angles are supplementary. Justify your answer. **c.** The measure of $\angle 1$ is $136°$ and the measure of $\angle 2$ is $44°$. **d.** The measure of $\angle 1$ is $95°$ and the measure of $\angle 2$ is $105°$.

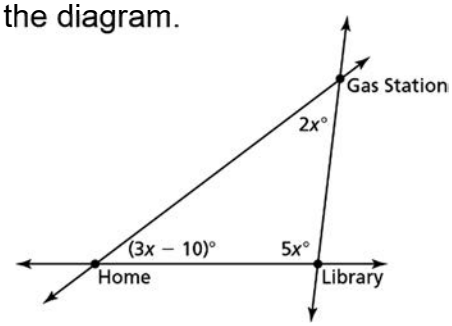
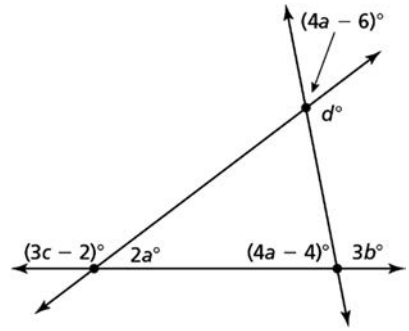
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

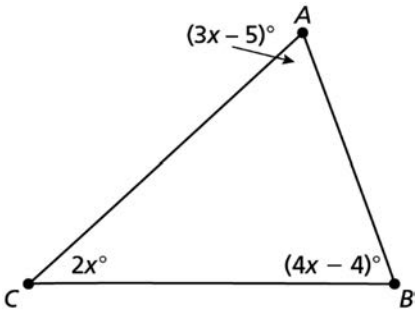
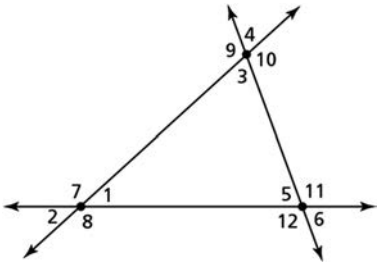
MA.8.GR.1.5 Solve problems involving the relationships of interior and exterior angles of a triangle.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve real-world problems involving the relationships of interior and exterior angles of a triangle.	Newton rides his bicycle from his home to the gas station to get air for the bicycle's tires. He then rides to the library, checks out a book, then rides back to home, as shown in the diagram.  **a.** What is the value of x? **b.** What are the measures of the interior angles at home, the gas station, and the library? **c.** What are the measures of the exterior angles at home, the gas station, and the library?
3	**I understand the entire standard.** • Solve mathematical problems involving the relationships of interior and exterior angles of a triangle.	Use the diagram to answer the questions.  **a.** What are the values of a, b, c and d? **b.** What is the measure of each interior angle of the triangle? **c.** What is the measure of each exterior angle of the triangle?

Name _____ Date _____

MA.8.GR.1.5 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Solve mathematical problems involving the relationships of interior angles of a triangle.	Use the triangle to answer the questions.  **a.** What is the value of x? **b.** What is the measure of each interior angle?
1	**I understand the basic skills needed to begin learning this standard.** • Identify interior and exterior angles of a triangle and apply the Triangle Sum Theorem.	Use the triangle shown.  **a.** Identify interior angles of the triangle. **b.** Identify exterior angles of the triangle. **c.** Write an equation to show the sum of the interior angle measures of the triangle.

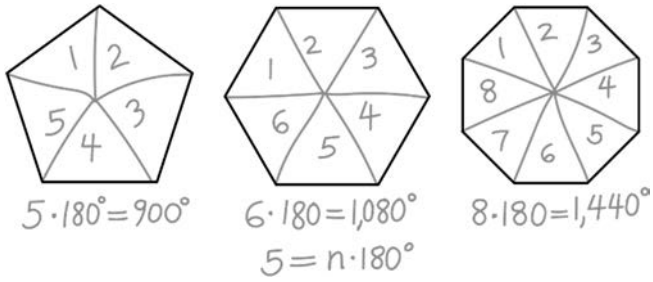
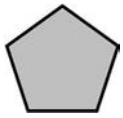
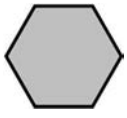
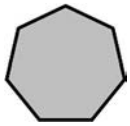
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

MA.8.GR.1.6 Develop and use formulas for the sums of the interior angles of regular polygons by decomposing them into triangles.

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

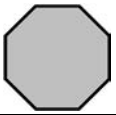
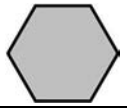
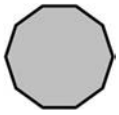
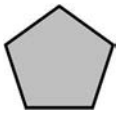
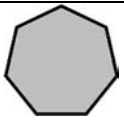
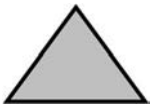
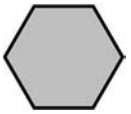
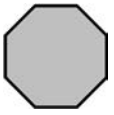
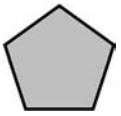
	Description	Evidence
4	**I can go beyond the standard.** • Correct a student's work by developing and using formulas for the sums of the interior angles of regular polygons by decomposing them into triangles.	A student divided three polygons into triangles, then found the sum of the interior angles of the polygons by multiplying the number of sides by 180°.  Correct the student's work by showing how to divide the figure into triangles and then explaining the mistake(s) the student made.
3	**I understand the entire standard.** • Develop and use formulas for the sums of the interior angles of regular polygons by decomposing them into triangles.	Divide the figure into triangles and then find the sum of the interior angles of the polygon by adding the sums of the interior angles of the triangles. **a.**  **b.**  **c.**  **d.** Complete the table. Then write an equation that represents the sum S of the interior angle measures of a polygon with n sides.

Number of sides, *n*	5	6	7
Number of triangles	3		
Interior angle sum, *S*		720°	

Equation: _____

Name _____ Date _____

MA.8.GR.1.6 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Use a formula to find the sums of the interior angle measures of regular polygons.	Use the formula $S = (n - 2) \cdot 180°$, where S is the sum of the interior angles of a polygon with n sides, to find the sum of the interior angles of each polygon. **a.**  $S =$ _____ **b.**  $S =$ _____ **c.**  $S =$ _____ **d.**  $S =$ _____ **e.**  $S =$ _____
1	**I understand the basic skills needed to begin learning this standard.** • Identify polygons.	Match the polygon with its name. **a.**  hexagon **b.**  octagon **c.**  pentagon **d.**  quadrilateral **e.**  triangle

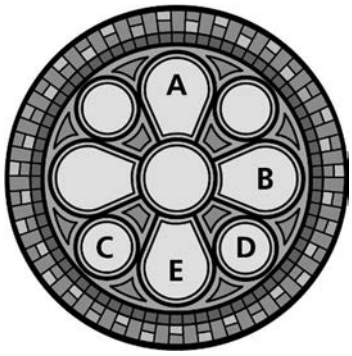
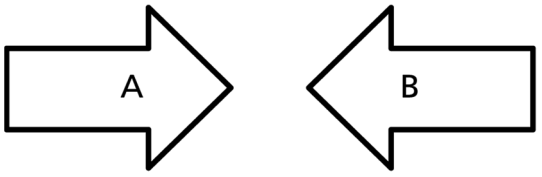
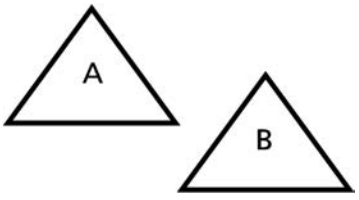
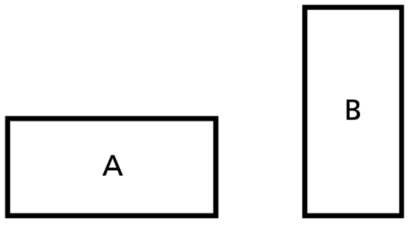
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

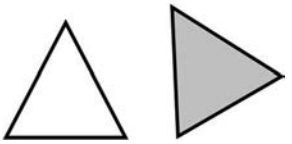
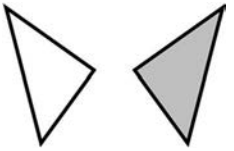
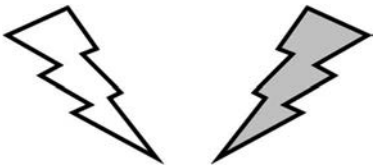
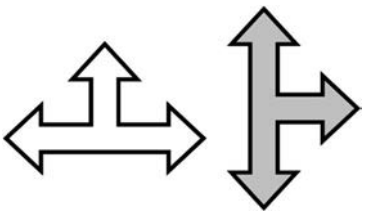
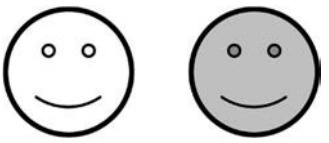
MA.8.GR.2.1 Given a preimage and image generated by a single transformation, identify the transformation that describes the relationship.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve real-world problems given a preimage and image generated by a single transformation and identify the transformation that describes the relationship.	Buildings often have decorative patterns and designs. Some designs are created by taking an image and transforming it.  What transformation could be used to move Shape A onto Shape B, Shape C onto Shape D, and Shape A onto shape E?
3	**I understand the entire standard.** • Identify the transformation that describes the relationship between a preimage and an image.	Identify the transformation that results in figure B from figure A. **a.**  **b.**  **c.** 

Name _____ Date _____

MA.8.GR.2.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Choose the transformation that describes the relationship between a preimage and an image.	The unshaded figure is transformed to form the shaded figure. Match the transformation with the words. **a.**  reflection **b.**  rotation **c.**  translation
1	**I understand the basic skills needed to begin learning this standard.** • Describe how to move a preimage to get an image.	Describe how you can move the unshaded figure to get the shaded figure. **a.**  **b.**  **c.** 

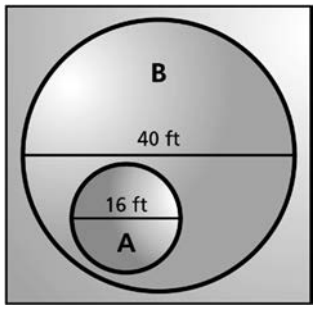
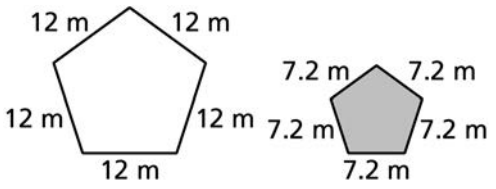
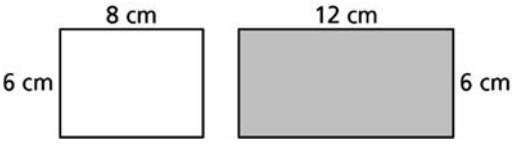
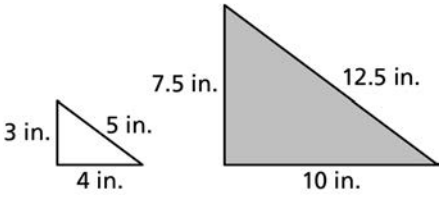
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

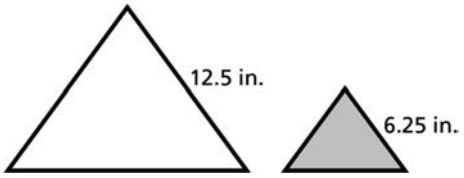
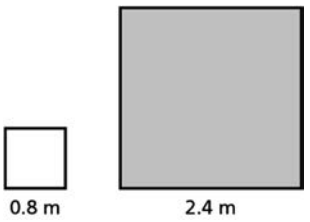
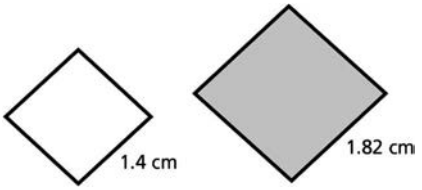
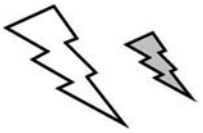
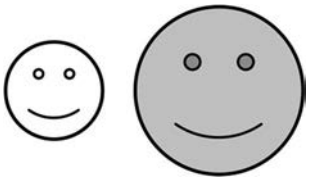
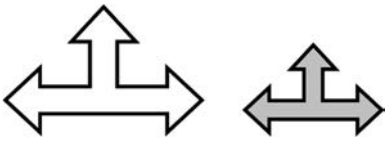
MA.8.GR.2.2 Given a preimage and image generated by a single dilation, identify the scale factor that describes the relationship.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve real-world problems given a preimage and image generated by a single dilation and identify the scale factor that describes the relationship.	Art often has decorative patterns and designs. Some designs are created by taking an image and transforming it.  Determine if shape B is a dilation of shape A. If it is, determine the dilation and the scale factor.
3	**I understand the entire standard.** • Identify the scale factor that describes the dilation between a preimage and an image.	Determine if the shaded shape is a dilation of the unshaded shaded shape. If it is, identify the dilation and the scale factor. **a.**  **b.**  **c.** 

Name _____ Date _____

MA.8.GR.2.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Choose the scale factor that describes the dilation between a preimage and an image.	Each unshaded figure is dilated to form the shaded figure. Find the scale factor. **a.** equilateral triangle  **b.** square  **c.** rhombus 
1	**I understand the basic skills needed to begin learning this standard.** • Identify the change from a preimage to an image.	The figures are similar. State if the unshaded figure is a reduction or an enlargement of the shaded figure. **a.**  **b.**  **c.** 

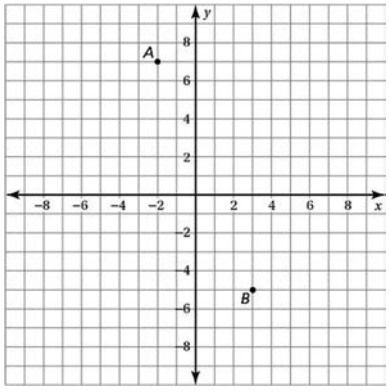
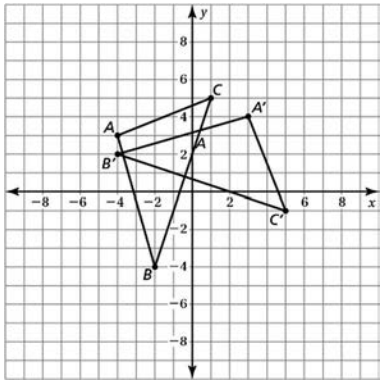
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

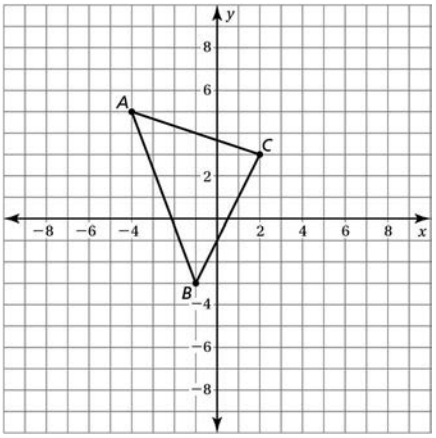
MA.8.GR.2.3 Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.

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

	Description	Evidence
4	**I can go beyond the standard.** • Solve real-world problems by describing and applying the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.	Computer and video game programmers use transformations when designing video games and animations. In a simplistic design, a person is at point *A* on the coordinate plane and moves to point *B*. **a.** Describe the transformation to get the person from point *A* to point *B*.  **b.** The point at *B* is rotated 180° about the origin. What are the coordinates of B'?
3	**I understand the entire standard.** • Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.	**a.** Triangle ABC is transformed to form triangle $A'B'C'$. Describe the transformation.  **b.** Triangle ABC is at $A(12, 4), B(3, -8)$, and $C(-2, 5)$. It is reflected about the *x*-axis to form triangle $A'B'C'$. What are the coordinates of $A', B',$ and C'?

Name _____ Date _____

MA.8.GR.2.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.	**a.** Triangle ABC is reflected about the *y*-axis to form triangle $A'B'C'$. What are the coordinates of $A', B', \text{and } C'$?  **b.** Triangle XYZ is at $X(2, 14), Y(4, -10)$ and $Z(-6, -8)$. It is dilated by a scale factor of 1.5 about the origin to form triangle $X'Y'Z'$. What are the coordinates of $X', Y', \text{and } Z'$?
1	**I understand the basic skills needed to begin learning this standard.** • Plot points in the coordinate plane.	Plot the points on the coordinate plane. **a.** $A(-5, 3)$ **b.** $B(4, -2)$ **c.** $C(-2, -3)$

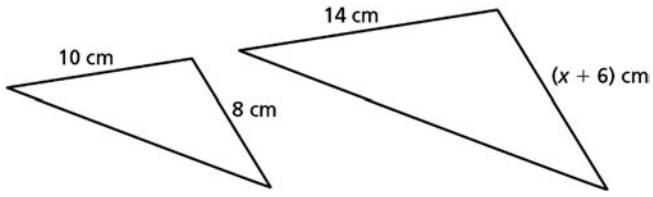
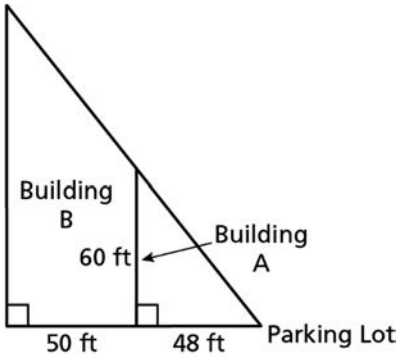
Name _____ Date _____

Evidence-Based Scale Worksheets

Geometric Reasoning

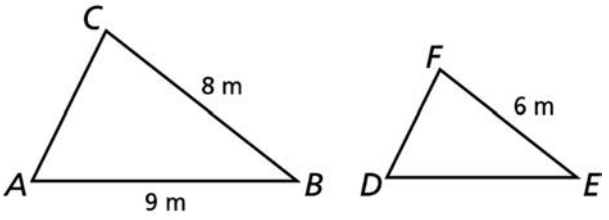
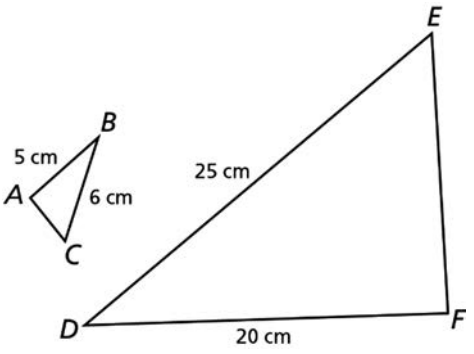
MA.8.GR.2.4 Solve mathematical and real-world problems involving proportional relationships between similar triangles.

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

	Description	Evidence
4	**I can go beyond the standard.** • Create real-world problems involving proportional relationships between similar triangles and solve them.	
3	**I understand the entire standard.** • Solve mathematical and real-world problems involving proportional relationships between similar triangles.	**a.** The triangles are similar. Solve for x.  A sixty-foot-tall building marked A is in front of a taller building marked B. There is 50 feet between the buildings. The sixty-foot-tall building is 48 feet from a parking lot.  **b.** How far away from the parking lot is building B? **c.** How tall is building B?

Name _____ Date _____

MA.8.GR.2.4 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Solve mathematical problems involving proportional relationships between similar triangles.	The triangles are similar. **a.** Find the length of side *DE*.  **b.** Find the length of side *AC*. 
1	**I understand the basic skills needed to begin learning this standard.** • Solve proportions.	Solve each proportion. **a.** $\frac{7}{12} = \frac{x}{18}$ **b.** $\frac{24}{9} = \frac{20}{x}$ **c.** $\frac{8.5}{x} = \frac{5}{15}$

Name _____ Date _____

Evidence-Based Scale Worksheets

Data Analysis and Probability
MA.8.DP.1.1 Given a set of real-world bivariate numerical data, construct a scatter plot or a line graph as appropriate for the context.

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

	Description	Evidence
4	**I can go beyond the standard.** • Tell a partner when it is the most appropriate time to use a scatter plot or a line graph.	
3	**I understand the entire standard.** • Construct a scatter plot given a set of real-world bivariate numerical data.	The table shows the numbers of touchdowns scored and games won by 10 football teams. Make a scatter plot of the data.

Touchdowns, *x*	28	31	38	36	39
Games Won, *y*	3	5	5	6	7

Touchdowns, *x*	42	46	47	51	53
Games Won, *y*	9	9	10	11	13

Name _____ Date _____

MA.8.DP.1.1 (continued)

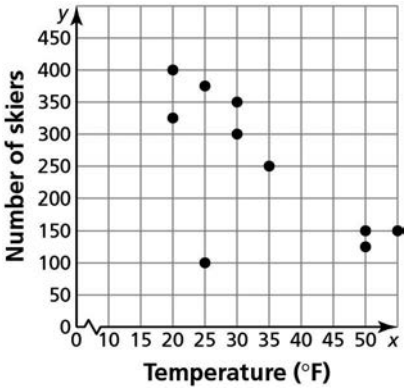
<table>
<tr><th></th><th>Description</th><th>Evidence</th></tr>
<tr><td>2</td><td>I understand some parts, but not the entire standard.
• Construct a line graph given a set of real-world bivariate numerical data.</td><td>The table shows the distance you are from your destination over an 8-hour period. Make a line graph of the data.
<table><tr><td>Hours</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Distance (miles)</td><td>540</td><td>480</td><td>425</td><td>365</td></tr></table>
<table><tr><td>Hours</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>Distance (miles)</td><td>300</td><td>250</td><td>195</td><td>135</td></tr></table></td></tr>
<tr><td>1</td><td>I understand the basic skills needed to begin learning this standard.
• Plot ordered pairs in a coordinate plane.</td><td>Plot each ordered pair in the coordinate plane.
a. P(2, 5)
b. Q(0, 8)
c. R(6, 3.5)
d. S(3, 0)
e. T(7, 7)
f. U(1.5, 2)</td></tr>
</table>

Name _____ Date _____

Evidence-Based Scale Worksheets

Data Analysis and Probability
MA.8.DP.1.2 Given a scatter plot within a real-world context, describe patterns of association.

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

	Description	Evidence
4	**I can go beyond the standard.** • Provide examples of real-life data sets that have specific patterns of association.	Describe a set of real-life data that has the given relationship. **a.** positive linear relationship **b.** nonlinear relationship
3	**I understand the entire standard.** • Describe patterns of association within a real-world context of a scatter plot.	The scatter plot shows the temperature in °F and the number of skiers at a ski resort. Identify any outliers for the scatterplot. Describe the patterns of association. 

Name _____ Date _____

MA.8.DP.1.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Identify positive or negative associations given real-world contexts.	Does the given scenario describe a positive or negative association? **a.** the number of years a plant has been growing and its height **b.** the speed of a car and the time it takes to arrive at a destination **c.** the outside temperature getting warmer and the heating bill **d.** the time spent exercising and the number of calories burned
1	**I understand the basic skills needed to begin learning this standard.** • Define and describe the various types of associations in a scatter plot.	Define the association as it relates to data in a scatter plot. **a.** positive/negative association **b.** linear/nonlinear association **c.** weak/strong association

Name _____ Date _____

Evidence-Based Scale Worksheets

Data Analysis and Probability
MA.8.DP.1.3 Given a scatter plot with a linear association, informally fit a straight line.

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

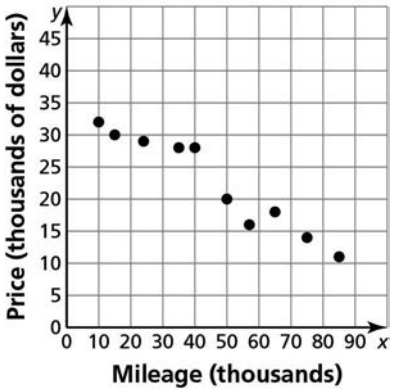
	Description	Evidence
4	**I can go beyond the standard.** • Teach someone else how to fit a straight line to a scatter plot using a variety of tools.	
3	**I understand the entire standard.** • Construct a scatter plot and draw a line of fit.	The table shows the daily high temperatures in degrees Fahrenheit and the numbers of frozen yogurts sold at a shop for several days. Make a scatter plot of the data and draw a line of fit.

Temperature (°F), *x*	60	63	68	70	75
Frozen yogurts sold, *y*	38	45	55	50	55

Temperature (°F), *x*	82	85	88	90	98
Frozen yogurts sold, *y*	70	68	70	85	92

Name _____ Date _____

MA.8.DP.1.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Informally fit a line to a scatter plot.	Use a ruler, or another appropriate tool, to fit a line to a scatter plot. 
1	**I understand the basic skills needed to begin learning this standard.** • Write an equation of a line that passes through two points.	Write an equation in slope-intercept form of the line that passes through the given points. **a.** (4, 5), (12, 3) **b.** (2, 2), (10, 6)

Name _____ Date _____

Evidence-Based Scale Worksheets

Data Analysis and Probability
MA.8.DP.2.1 Determine the sample space for a repeated experiment.

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

	Description	Evidence
4	**I can go beyond the standard.** • Explain how to find the sample space for a real-world scenario.	Mrs. Smith is making a seating chart for her 10 students. What is the total number of ways she can seat her students? Explain.
3	**I understand the entire standard.** • Find the sample space of a repeated experiment.	Find the sample space of the experiment. **a.** rolling a six-sided die twice **b.** spinning a four-section spinner with colors red, orange, yellow, and blue twice **c.** tossing a coin three times

Name _____ Date _____

MA.8.DP.2.1 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the sample space of a single experiment.	Find the sample space of the experiment. **a.** rolling a six-sided die **b.** spinning a four-section spinner with colors red, orange, yellow, and blue **c.** tossing a coin
1	**I understand the basic skills needed to begin learning this standard.** • Identify various ways to record sample spaces of experiments.	List three methods used to record the sample spaces of experiments.

Name _____ Date _____

Evidence-Based Scale Worksheets

Data Analysis and Probability
MA.8.DP.2.2 Find the theoretical probability of an event related to a repeated experiment.

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

	Description	Evidence
4	**I can go beyond the standard.** • Create a repeated experiment. Find the theoretical probability of different outcomes.	
3	**I understand the entire standard.** • Find the theoretical probability of an event related to a repeated experiment.	A six-sided die is rolled twice. Find the theoretical probability of each event. **a.** rolling the same number twice **b.** rolling a sum greater than or equal to 9 **c.** rolling two even numbers **d.** rolling a 6 at least one time

Name _____ Date _____

MA.8.DP.2.2 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Find the theoretical probability of an event related to a single experiment.	A bag of marbles contains 9 marbles. Of these 9 marbles, 3 are red, 3 are blue, and 3 are yellow. You reach in the bag and choose one marble. Find the probability of each event. **a.** drawing a blue marble **b.** drawing a red or blue marble **c.** drawing a green marble
1	**I understand the basic skills needed to begin learning this standard.** • Find the sample spaces of repeated experiments.	Find the sample space of each experiment. **a.** tossing a coin three times **b.** spinning a three-section spinner, labeled with green, blue, and purple sections, twice

Name _____ Date _____

Evidence-Based Scale Worksheets

Data Analysis and Probability

MA.8.DP.2.3 Solve real-world problems involving probabilities related to single or repeated experiments, including making predictions based on theoretical probability.

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

	Description	Evidence
4	**I can go beyond the standard.** • Design a simulation for a repeated experiment. Perform the simulation. Then find the theoretical probability of different outcomes.	
3	**I understand the entire standard.** • Solve real-world problems related to repeated experiments, including making predictions based on theoretical probability.	An experiment of flipping two coins is performed 2500 times. What is the expected number of outcomes for each event? **a.** heads twice **b.** tails at least once **c.** heads once and tails once

Name _____ Date _____

MA.8.DP.2.3 (continued)

	Description	Evidence
2	**I understand some parts, but not the entire standard.** • Solve real-world problems related to a single experiment, including making predictions based on theoretical probability.	A spinner has 10 sections that are equal in size. The sections of the spinner are numbered 1 through 10. Predict the number of times each event will occur if the spinner is spun 1000 times. **a.** spinning a 1 **b.** spinning a multiple of 3 **c.** spinning an even number **d.** spinning a 0
1	**I understand the basic skills needed to begin learning this standard.** • Find probabilities of events.	Find the probability of each event. **a.** rolling an even number on a number cube **b.** choosing a number less than or equal to 6 from a bag containing marbles numbered 0–9