

Rising Analytic Geometry Summer Math Packet

Dear Parents,

Rockdale County Public Schools is committed to providing the best math education possible for your child. Due to the cumulative nature of mathematics, in order for your child to be successful in the coming school year, he/she must possess mastery of many concepts from his/her previous math classes. For this reason, we have created a summer math packet to ensure your child is up to date on his/her prerequisite math skills.

1. Complete the practice problems embedded in the summer packet **for the students who will be enrolled in Analytic Geometry during the Fall of 2020**. The use of DESMOS calculator can be found in their ClassLink calculator link on their laptop.



2. Students will submit their answers to the practice problems by clicking a link to a Microsoft Form. Answers will be checked and students will be given automatic feedback to see whether their answer is correct or incorrect.
3. The use of www.khanacademy.org can be helpful for students to use. Type in the learning target topic(s) in the search menu. Here, your son/daughter will find tutorials and extra practice problems. Have him/her watch the tutorials and do the extra practice problems. This website will let your child know if he/she is doing the work correctly.

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Week 1

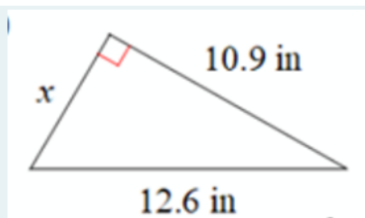
Prerequisite Skill: Pythagorean Theorem

Learning Targets:

- ✓ I can use the Pythagorean Theorem to solve for a missing side of a right triangle.
- ✓ I can use the converse of the Pythagorean Theorem to determine if a triangle is a right triangle.

Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.

1

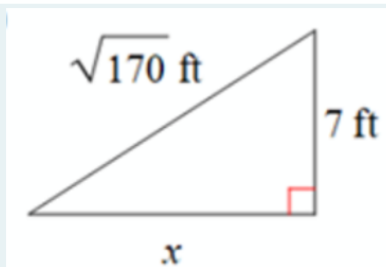


Given the triangle, determine the step where the student made the error in finding the missing side length. *

(1 Point)

- ☐ $(10.9)^2 + (12.6)^2 = c^2$
- ☐ $118.81 + 158.76 = c^2$
- ☐ $277.57 = c^2$
- ☐ $\sqrt{277.57} = \sqrt{c^2}$
- ☐ $16.7 = c$

2

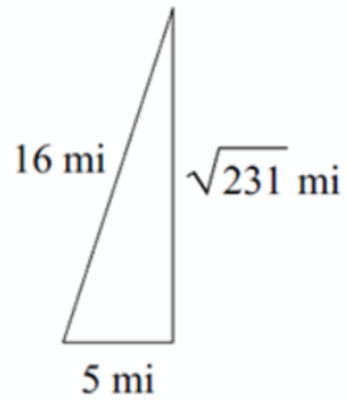


Given the triangle, determine the step where the student made the error in finding the missing side length. *

(1 Point)

- ☐ $x^2 + 7^2 = (\sqrt{170})^2$
- ☐ $x^2 + 49 = 28900$
- ☐ $x^2 = 28851$
- ☐ $\sqrt{x^2} = \sqrt{28851}$
- ☐ $x = 169.86$

3



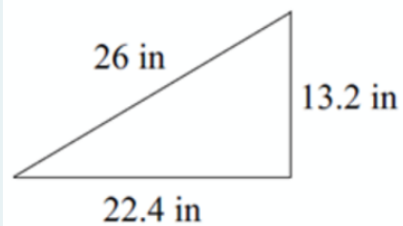
Use the Converse of the Pythagorean Theorem to determine if the given triangle is a right triangle. *

(1 Point)

☐ yes

☐ no

4



Use the Converse of the Pythagorean Theorem to determine if the given triangle is a right triangle. *

(1 Point)

☐ yes

☐ no

5

A 13 ft ladder is placed 5 ft away from the wall. The distance from the ground straight up to the top of the wall is 13 ft. Will the ladder reach the top of the wall? Draw and label a diagram to help you answer. *

(1 Point)

☐ yes

☐ no

6

An isosceles triangle has congruent sides of 20 cm. The base of the triangle is 10 cm. Find the height of the triangle. Draw and label a diagram to help you answer. *

(1 Point)

- ☐ 20 cm
- ☐ 19.4 cm
- ☐ 20.6 cm
- ☐ 10 cm

Prerequisite Skill: Transformations

Learning Targets:

- ✓ I can identify transformations displayed.
- ✓ I can identify the effect of translations, reflections, rotations, and dilations on figures using coordinates.

Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.

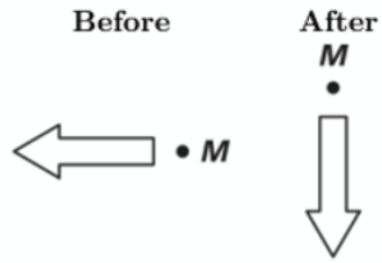
1

Which transformation does not create a congruent figure? *

(1 Point)

- ☐ translation
- ☐ reflection
- ☐ rotation
- ☐ dilation

2



The position of an arrow and Point M is shown in the before-and-after drawing. Which statement best describes how the position of the arrow was changed from before to after? *

(1 Point)

- ☐ The arrow was rotated 90 degrees clockwise around Point M.
- ☐ The arrow was rotated 180 degrees clockwise around Point M.
- ☐ The arrow was rotated 90 degrees counterclockwise around Point M.
- ☐ The arrow was rotated 270 degrees counterclockwise around Point M.

3

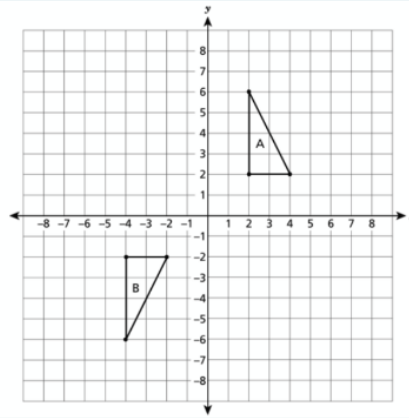
Figure M is transformed 2 times. The result is the image shown. Which statement best describes the transformation of Figure M? *

(1 Point)



- ☐ translate left two times
- ☐ translate right two times
- ☐ rotate 90 degrees clockwise two times
- ☐ reflect across a vertical line two times

4

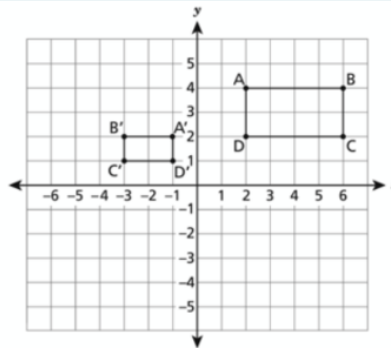


Triangle A and triangle B are graphed on the coordinate plane. Which sequence of transformations will map triangle A onto its congruent image, triangle B? *

(1 Point)

- ☐ a reflection over the x-axis, then a reflection over the y-axis
- ☐ a translation 8 units down, then a reflection over the y-axis
- ☐ a reflection over the x-axis, then a translation 6 units to the left
- ☐ a rotation of 90 degrees clockwise about the origin, then a translation 6 units to the left

5



Rectangle A'B'C'D' is similar to rectangle ABCD, as shown on the coordinate plane. Which sequence of transformations maps rectangle ABCD onto rectangle A'B'C'D'? *

(1 Point)

- ☐ a translation 8 units to the left, then a dilation by a scale factor of $\frac{1}{2}$ with a center of dilation at the origin
- ☐ a reflection over the y-axis, then a dilation by a scale factor of $\frac{1}{2}$ with a center of dilation at the origin
- ☐ a dilation by a scale factor of $\frac{1}{2}$ with a center of dilation at the origin, then a 90 degree counterclockwise rotation about the origin
- ☐ a 90 degree counterclockwise rotation about the origin, then a dilation by a scale factor of $\frac{1}{2}$ with a center of dilation at the origin

Week 2

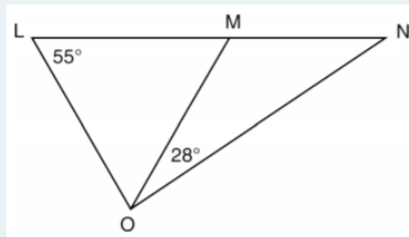
Prerequisite Skill: Basic Triangle Knowledge

Learning Targets:

- ✓ I can use the triangle sum theorem to find a missing angle in a triangle.
- ✓ I can use isosceles and equilateral triangle properties to solve for missing sides and angles.

Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.

1



In the diagram, triangle LMO is isosceles with $LO = MO$. If the measure of angle L is 55 degrees and the measure of angle NOM is 28 degrees, what is the measure of angle N? *

(1 Point)

- ☐ 27
- ☐ 28
- ☐ 42
- ☐ 70

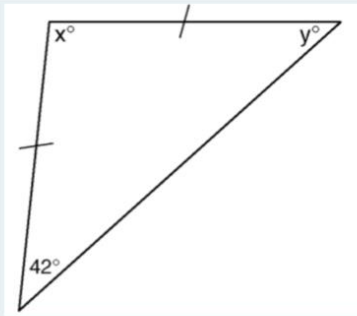
2

The measures of two angles of a triangle are 70 degrees and 55 degrees. What's the name of this triangle? *

(1 Point)

- ☐ a right triangle
- ☐ a scalene triangle
- ☐ an obtuse triangle
- ☐ an isosceles triangle

3

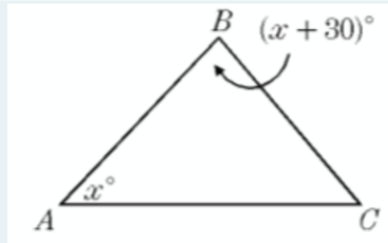


Tina wants to sew a piece of fabric into a scarf in the shape of an isosceles triangle, as shown in the diagram. What are the values of x and y ? *

(1 Point)

- ☐ $x = 42^\circ$, $y = 96^\circ$
- ☐ $x = 69^\circ$, $y = 69^\circ$
- ☐ $x = 90^\circ$, $y = 48^\circ$
- ☐ $x = 96^\circ$, $y = 42^\circ$

4



Triangle ABC is isosceles with side AB congruent to side BC. What is the value of x ? *

(1 Point)

- ☐ 80°
- ☐ 75°
- ☐ 50°
- ☐ 30°

5

The measures of the angles of a triangle are represented by $(3x - 20)$, $(7x + 30)$, and $(2x + 50)$. Find the value of x . *

(1 Point)

- ☐ 10
- ☐ 15
- ☐ 20
- ☐ 25

6

The measures of the angles of a triangle are represented by $4x$, $x + 40$, and $2x$. Find the value of x . *

(1 Point)

- ☐ 10
- ☐ 15
- ☐ 20
- ☐ 25

Prerequisite Skill: Square and Cube Roots

Learning Targets:

- ✓ I can recognize the relationship between perfect squares and square roots is reciprocal.
- ✓ I can recognize the relationship between cubes and cube roots is reciprocal.
- ✓ I can identify and simplify perfect square roots and cube roots.

Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.

1

Simplify the expression below.

(1 Point)

$$4^3$$

- ☐ 64
- ☐ 157
- ☐ 63
- ☐ 45

2

Find the sum between the following expressions.

(1 Point)

$$(3 + 3)^2 \text{ and } 2^3$$

- ☐ 18
- ☐ 20
- ☐ 26
- ☐ 44

3

Find the value of the following: *

(1 Point)

$$\sqrt{225}$$

- ☐ 5
- ☐ 15
- ☐ 16
- ☐ 20

4

Which of the following expressions has a value of 16? *

(1 Point)

- ☐ $\sqrt{(8)^2}$
- ☐ $(\sqrt{64})^2$
- ☐ $(\sqrt{32})^2$
- ☐ $\sqrt{(16)^2}$

5

*

(1 Point)

Aaron used the Pythagorean theorem to find the height of a tree. He calculated that the tree was $\sqrt{625}$ feet tall. Which of the following should be used to write the height of the tree?

- ☐ both 25 feet and -25 feet
- ☐ 25 feet
- ☐ -25 feet
- ☐ 625 feet

6

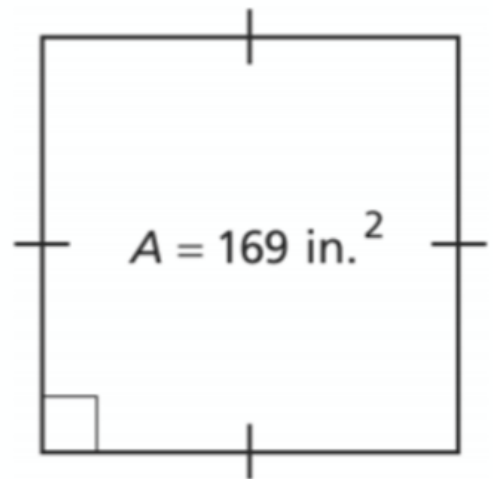
What is the value of the expression below? *

(1 Point)

$$\sqrt{6^2 + 8^2}$$

- ☐ 30
- ☐ 29
- ☐ 10
- ☐ 9

7



What is the length, in inches, of each side of this square? *

- ☐ 13 in.
- ☐ 14 in.
- ☐ 42.25 in.
- ☐ 84.5 in.

8

A square garden has an area of 36 square meters. Which expression represents the length of each side of the garden? *

- ☐ $\sqrt{36} \text{ meters}$
- ☐ $36 \div 2 \text{ meters}$
- ☐ $36 \times 2 \text{ meters}$
- ☐ 36^2 meters

Week 3

Prerequisite Skill: Multiplying Fractions	Learning Targets: ✓ I can multiply fractions. ✓ I can multiply a whole number and a fraction.
Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.	
1. Find the product between the two fractions below. (1 Point) $\frac{3}{7} \times \frac{5}{8}$ <input type="radio"/> $\frac{15}{56}$ <input type="radio"/> $\frac{2}{7}$ <input type="radio"/> 0 <input type="radio"/> $\frac{7}{8}$	2. Find the product between the two fractions below. (1 Point) $\frac{4}{5} \times \frac{3}{9}$ <input type="radio"/> $\frac{4}{15}$ <input type="radio"/> $\frac{9}{13}$ <input type="radio"/> $\frac{3}{5}$ <input type="radio"/> $\frac{2}{9}$
3. The product of two-thirds and one-eighth is : (1 Point) <input type="radio"/> $\frac{2}{27}$ <input type="radio"/> $\frac{1}{12}$ <input type="radio"/> $\frac{3}{11}$ <input type="radio"/> $\frac{23}{18}$	4. Five-ninths and three-tenths has a product of (1 Point) <input type="radio"/> $\frac{3}{6}$ <input type="radio"/> $\frac{8}{19}$ <input type="radio"/> $\frac{1}{6}$ <input type="radio"/> $\frac{1}{2}$
5. Eight times four-fifths is (1 Point) <input type="radio"/> $\frac{8}{13}$ <input type="radio"/> $\frac{2}{5}$ <input type="radio"/> $\frac{32}{5}$ <input type="radio"/> $\frac{16}{25}$	

Prerequisite Skill: Properties of Exponents		Learning Targets: ✓ I can use the properties of exponents to simplify, multiply, and divide expressions.
Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.		
<p>1. Simplify. * (1 Point)</p> <p>$(4x^3y^7)^4$</p> <p><input type="radio"/> $4x^7y^{11}$</p> <p><input type="radio"/> $4x^{12}y^{28}$</p> <p><input type="radio"/> $16x^7y^{11}$</p> <p><input type="radio"/> $256x^{12}y^{28}$</p>	<p>2. Simplify. * (1 Point)</p> <p>$\frac{x^3}{x^5}$</p> <p><input type="radio"/> $\frac{1}{x^2}$</p> <p><input type="radio"/> $\frac{2}{9x^2}$</p> <p><input type="radio"/> $\frac{3}{x^2}$</p> <p><input type="radio"/> $\frac{1}{9x^2}$</p>	<p>3. Simplify. * (1 Point)</p> <p>$(5x^6y^{-2})(3x^5y^7)$</p> <p><input type="radio"/> $15x^{11}y^5$</p> <p><input type="radio"/> $2xy^5$</p> <p><input type="radio"/> $15x^{11}y^9$</p> <p><input type="radio"/> $8xy^9$</p>
<p>4. Simplify. * (1 Point)</p> <p>$\left(\frac{x^4}{y^{-7}}\right)^2$</p> <p><input type="radio"/> $\frac{x^8}{y^{14}}$</p> <p><input type="radio"/> x^8y^9</p> <p><input type="radio"/> x^8y^{14}</p> <p><input type="radio"/> $31381059609x^8y^{14}$</p>		<p>5. Simplify. * (1 Point)</p> <p>$y^3 \times y^{-4} \times y^5$</p> <p><input type="radio"/> y^4</p> <p><input type="radio"/> $81y^4$</p> <p><input type="radio"/> $16y^4$</p> <p><input type="radio"/> y^2</p>

Week 4

Prerequisite Skill: Plotting Points in the Coordinate Plane

Learning Targets:

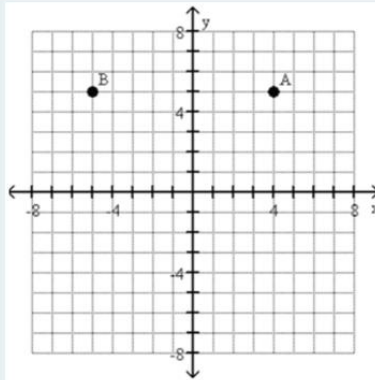
- ✓ I can write down coordinates in all four quadrants.
- ✓ I can plot coordinates correctly.

Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.

1

Find the coordinates of Point A. *

(1 Point)

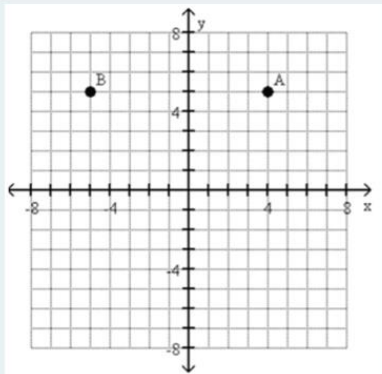


- ☐ A(4, 5)
- ☐ A(-4, 5)
- ☐ A(4, -5)
- ☐ A(5, 24)

2

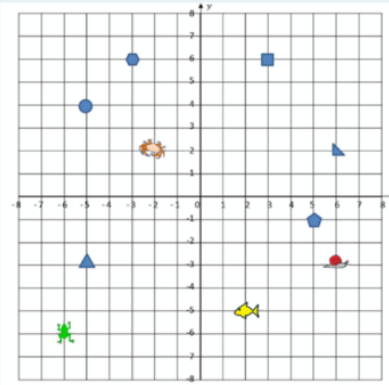
Find the coordinates of Point B. *

(1 Point)



- ☐ B(-5, -5)
- ☐ B(5, -5)
- ☐ B(5, 5)
- ☐ B(-5, 5)

3

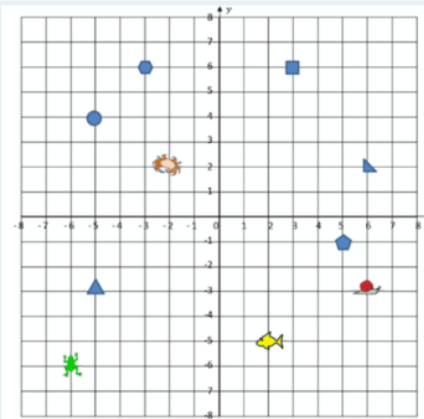


Use the coordinate plane to find the coordinates below. *

(1 Point)

- ☐ Circle $(-5, -4)$
- ☐ Square $(3, 6)$
- ☐ Hexagon $(6, -3)$
- ☐ Frog $(6, -6)$

4



Use the coordinate plane to find the coordinates below. *

(1 Point)

- ☐ Fish $(-5, -2)$
- ☐ Pentagon $(-1, 5)$
- ☐ Right Triangle $(6, 2)$
- ☐ Snail $(3, -6)$

Prerequisite Skill: Solving Multi-Step Equations	Learning Targets: ✓ I can solve a multi-step equation of one variable. ✓ I can solve a multi-step equation with variables on both sides.	
Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.		
1. Determine the step where the student made the error in solving the equation. (1 Point) $3x + 4 = 25$ <input type="radio"/> $3x + 4 + (-4) = 25 + (-4)$ <input type="radio"/> $3x = -21$ <input type="radio"/> $\frac{3x}{3} = \frac{-21}{3}$ <input type="radio"/> $x = -7$		
2. Solve. * (1 Point) $\frac{x}{4} - 5 = 7$ <input type="radio"/> $x = 48$ <input type="radio"/> $x = 116$ <input type="radio"/> $x = 47$ <input type="radio"/> $x = 77$	3. Solve. * (1 Point) $-10x - 1 = -51$ <input type="radio"/> $x = 7$ <input type="radio"/> $x = 6$ <input type="radio"/> $x = 5$ <input type="radio"/> $x = 3$	
4. Solve. * (1 Point) $8(-5 + y) = 96$ <input type="radio"/> $y = 17$ <input type="radio"/> $y = 34$ <input type="radio"/> $y = 28$ <input type="radio"/> $y = 29$	5. Solve. * (1 Point) $\frac{x}{5} + 2 = -1$ <input type="radio"/> $x = -12$ <input type="radio"/> $x = -9$ <input type="radio"/> $x = -22$ <input type="radio"/> $x = -15$	6. Solve. * (1 Point) $-5y + 13 = 1 - 7y$ <input type="radio"/> $y = -6$ <input type="radio"/> $y = -4$ <input type="radio"/> $y = -18$ <input type="radio"/> $y = -9$

Week 5

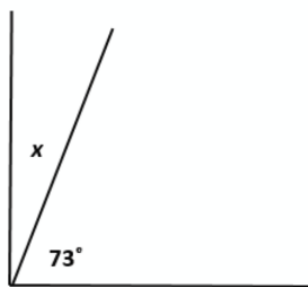
Prerequisite Skill: Solving Proportions			Learning Targets: ✓ I can solve a proportion using cross multiplication (cross products).	
Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.				
<p>1. Solve. * (1 Point)</p> $\frac{3}{x} = \frac{27}{5}$ <p><input type="radio"/> $x = \frac{5}{9}$</p> <p><input type="radio"/> $x = 0$</p> <p><input type="radio"/> $x = \frac{1}{4}$</p> <p><input type="radio"/> $x = \frac{5}{4}$</p>	<p>2. Solve. * (1 Point)</p> $\frac{7}{x} = \frac{182}{17}$ <p><input type="radio"/> $x = 0$</p> <p><input type="radio"/> $x = \frac{5}{7}$</p> <p><input type="radio"/> $x = \frac{1}{14}$</p> <p><input type="radio"/> $x = \frac{17}{26}$</p>	<p>3. Solve. * (1 Point)</p> $\frac{4}{x} = \frac{29}{2}$ <p><input type="radio"/> $x = \frac{3}{4}$</p> <p><input type="radio"/> $x = \frac{8}{29}$</p> <p><input type="radio"/> $x = \frac{1}{5}$</p> <p><input type="radio"/> $x = \frac{7}{12}$</p>	<p>4. Solve. * (1 Point)</p> $\frac{1}{x} = \frac{187}{19}$ <p><input type="radio"/> $x = \frac{19}{187}$</p> <p><input type="radio"/> $x = 0$</p> <p><input type="radio"/> $x = \frac{1}{6}$</p> <p><input type="radio"/> $x = \frac{2}{19}$</p>	<p>5. Solve. * (1 Point)</p> $\frac{7}{x} = \frac{8}{7}$ <p><input type="radio"/> $x = 19$</p> <p><input type="radio"/> $x = \frac{251}{17}$</p> <p><input type="radio"/> $x = \frac{49}{8}$</p> <p><input type="radio"/> $x = \frac{9}{4}$</p>

Prerequisite Skill: Lines and Angles	Learning Targets: ✓ I can determine if pairs of angles are complementary or supplementary. ✓ I can determine the measures of alternate interior angles, alternate exterior angles, corresponding angles, and vertical angles when two parallel lines are cut by a transversal.
Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.	

1

Find x . *

(1 Point)

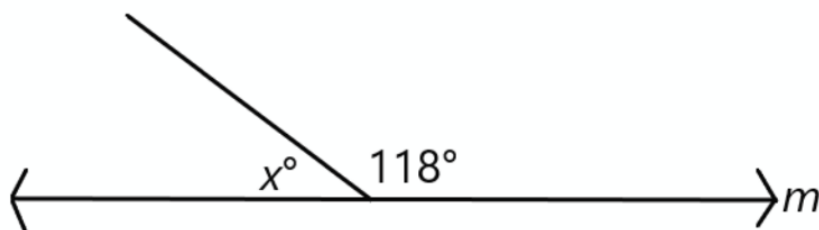


- ☐ $x = 107^\circ$
- ☐ $x = 12^\circ$
- ☐ $x = 15^\circ$
- ☐ $x = 17^\circ$

2

Find x . *

(1 Point)

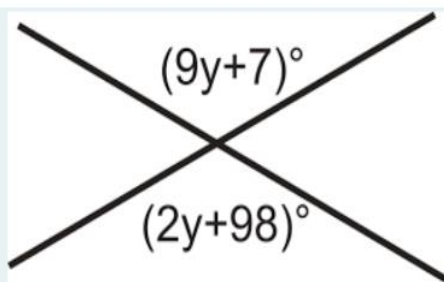


- ☐ $x = 28^\circ$
- ☐ $x = 62^\circ$
- ☐ $x = 180^\circ$
- ☐ $x = 360^\circ$

3

Solve for y . *

(1 Point)

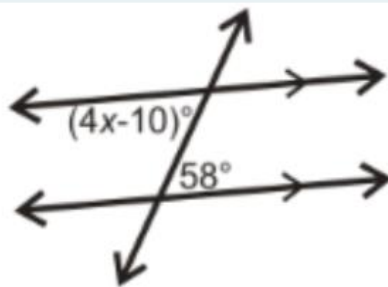


- ☐ $y = 5$
- ☐ $y = 10$
- ☐ $y = 13$
- ☐ $y = 20$

4

Solve for x . *

(1 Point)

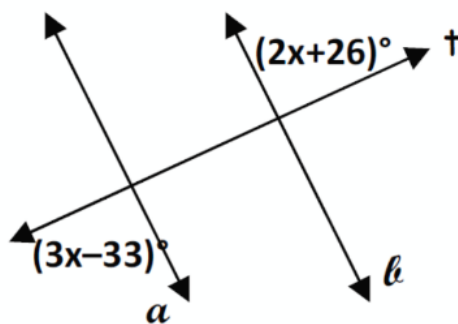


- ☐ $x = 17$
- ☐ $x = 7.5$
- ☐ $x = 5$
- ☐ $x = 90$

5

Solve for x . *

(1 Point)



- ☐ $x = 20$
- ☐ $x = 59$
- ☐ $x = 62$
- ☐ $x = 80$

Week 6

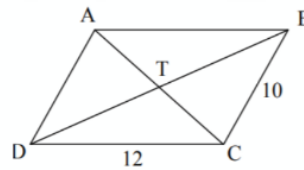
Prerequisite Skill: Properties of Quadrilaterals

Learning Targets:

- ✓ I can prove a quadrilateral is a parallelogram given information about the sides, angles, or diagonals.
- ✓ I can identify a quadrilateral with a specific name when given a description of the properties of the quadrilateral.
- ✓ I can calculate missing measurements in rhombuses, rectangles, and squares using their properties.

Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.

1



For parallelogram ABCD, find the length of AC if TC is 9. *

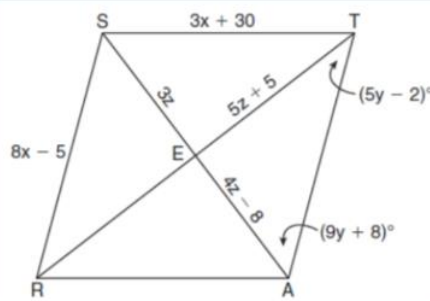
(1 Point)

- ☐ AC = 9
- ☐ AC = 10
- ☐ AC = 12
- ☐ AC = 18

2

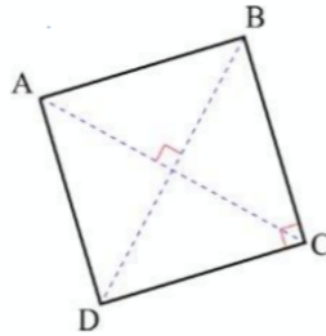
For rhombus STAR, find the value of z and RT . *

(1 Point)



- ☐ $z = 8$; $RT = 8$ units
- ☐ $z = 8$; $RT = 48$ units
- ☐ $z = 8$; $RT = 59$ units
- ☐ $z = 8$; $RT = 90$ units

3

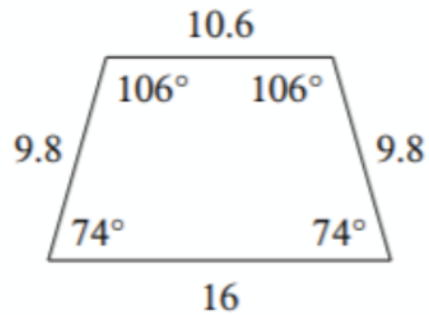


For square ABCD, if $BC = 3x + 14$ and $DC = 5x - 8$, find the value of x . *

(1 Point)

- ☐ $x = \frac{11}{4}$
- ☐ $x = 3$
- ☐ $x = 11$
- ☐ $x = 22$

4

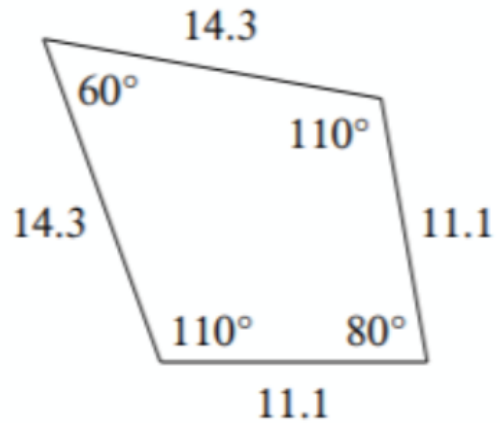


State the most specific name for the figure shown. *

(1 Point)

- ☐ Isosceles Trapezoid
- ☐ Rectangle
- ☐ Kite
- ☐ Square

5



State the most specific name for the figure shown. *
(1 Point)

- ☐ Square
- ☐ Rectangle
- ☐ Kite
- ☐ Isosceles Trapezoid

Prerequisite Skill: Rounding

Learning Targets:

- ✓ I can round decimals to a specific place value.
- ✓ I can explain how decimals are rounded.

Practice Problems: Select the best answer choice for each problem. Show your work in the boxes or on a separate sheet of paper.

1. Round 123.86 to the nearest tenth.
(1 Point)

- ☐ 123.8
- ☐ 124.0
- ☐ 123.9
- ☐ 123.7

2. Round 0.0541 to the nearest hundredth
(1 Point)

- ☐ 0.1
- ☐ 0.05
- ☐ 0.054
- ☐ 0.06

3. Round 7.987 to the nearest hundredth.
(1 Point)

- ☐ 7.99
- ☐ 7.98
- ☐ 7.90
- ☐ 8.00

4. Round 2,014.2486 to the nearest thousandth.
(1 Point)

- ☐ 2,014.25
- ☐ 2,014.2487
- ☐ 2,014.2
- ☐ 2,014.249

5. When asked to round 1.045 to the nearest tenth, what will the result be? *
(1 Point)

- ☐ 1.0 because the 4 is too low to round up the 0
- ☐ 1.1 because the 4 causes the 0 to round up
- ☐ 1.1 because the 5 in the thousandths place rounds up the 4 in the hundredths place
- ☐ 1.05 because the 5 in the thousandths place rounds up in the hundredths place