

9.2 Start Thinking

Draw an equilateral triangle and label the sides $2s$. Draw a perpendicular bisector from a vertex of the equilateral triangle to create two congruent right triangles. Find each side length of the right triangles in terms of s . Is it possible for the side lengths to form a Pythagorean triple? Explain.

9.2 Warm Up

Solve the equation. Write your answer in simplest form.

1. $8 = x\sqrt{2}$

2. $1.5 = x\sqrt{3}$

3. $2x = 8\sqrt{7}$

4. $5\sqrt{2} = \sqrt{3}x$

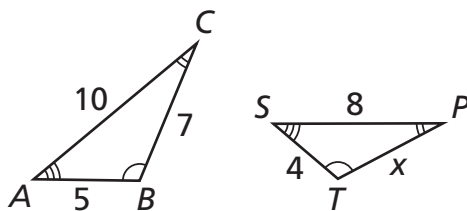
5. $\frac{9}{2} = x\sqrt{3}$

6. $8.4 = \sqrt{2}x$

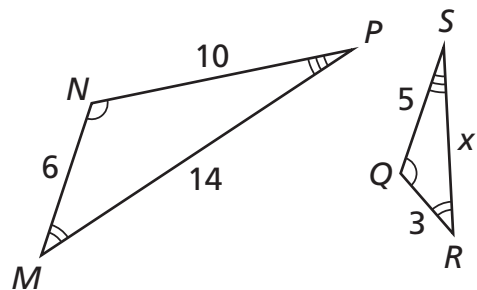
9.2 Cumulative Review Warm Up

Given that the polygons are similar, find the value of x .

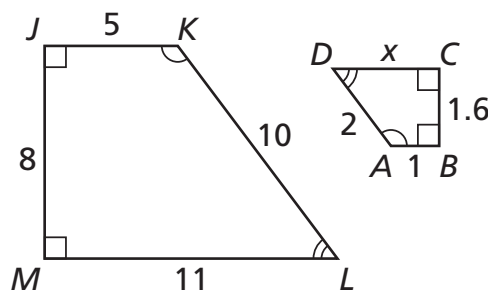
1.



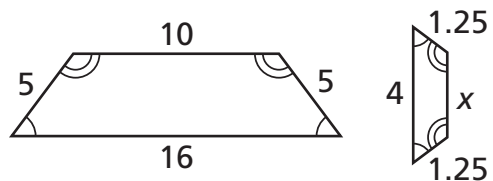
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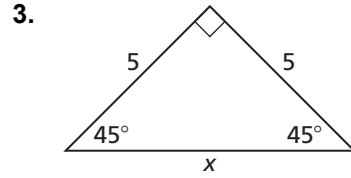
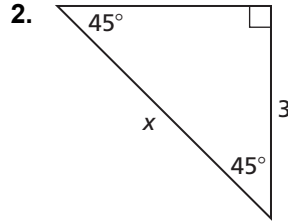
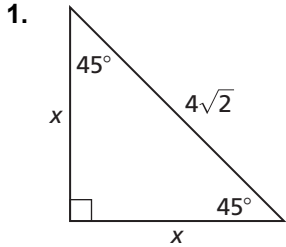
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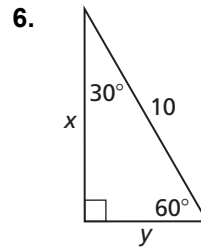
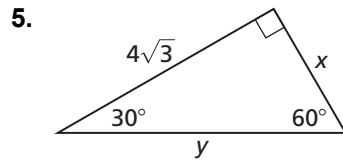
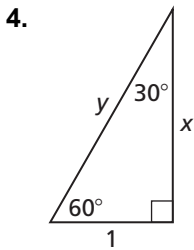
9.2

Practice A

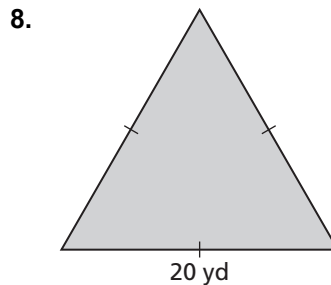
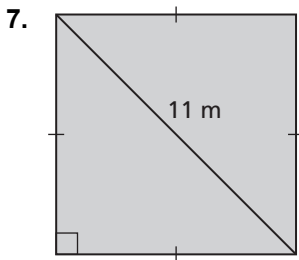
In Exercises 1–3, find the value of x . Write your answer in simplest form.



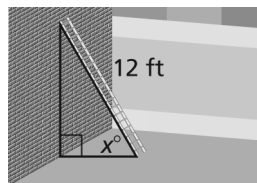
In Exercises 4–6, find the values of x and y . Write your answers in simplest form.



In Exercises 7 and 8, find the area of the figure. Round decimal answers to the nearest tenth.



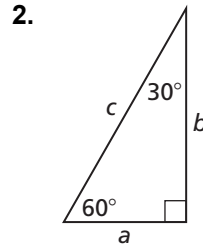
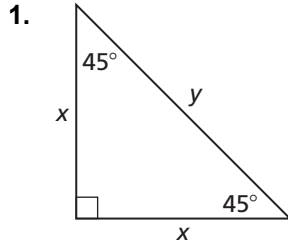
9. A 12-foot ladder is leaning up against a wall, as shown. How high does the ladder reach up the wall when x is 30° ? 45° ? 60° ? Round decimal answers to the nearest tenth, if necessary.



9.2

Practice B

In Exercises 1 and 2, copy and complete the table. Write your answers in simplest form.



x	5		$\sqrt{2}$	
y		$4\sqrt{2}$		24

a	11			
b		9		$5\sqrt{3}$
c			16	

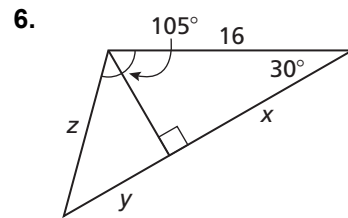
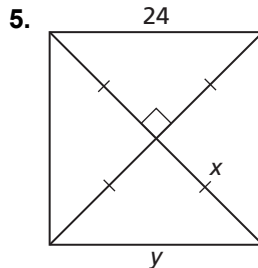
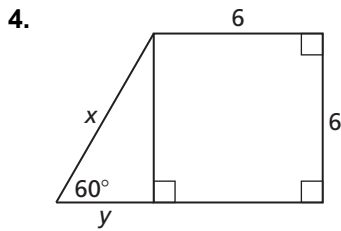
3. The side lengths of a triangle are given. Determine whether each triangle is a 45° - 45° - 90° triangle, a 30° - 60° - 90° triangle, or neither.

a. 5, 10, $5\sqrt{3}$

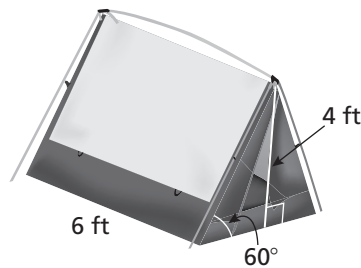
b. 7, 7, $7\sqrt{3}$

c. 6, 6, $6\sqrt{2}$

In Exercises 4–6, find the values of the variables. Write your answers in simplest form.



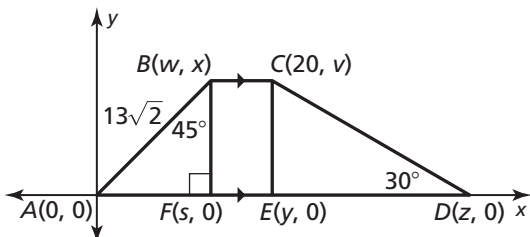
7. You build a two-person tent, as shown. How many square feet of material is needed to make the tent, assuming the tent has a floor?



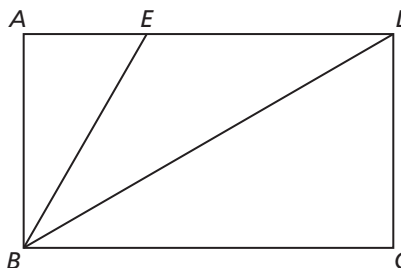
9.2 Enrichment and Extension

Special Right Triangles

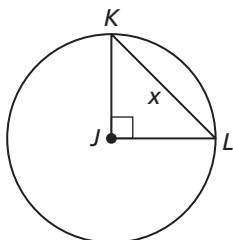
1. Find the values of s , v , w , x , y , and z .



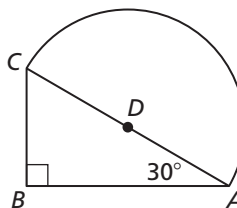
2. $ABCD$ is a rectangle. $AB = 1$, and \overline{BE} and \overline{BD} trisect $\angle ABC$. What is the perimeter of $\triangle BED$?



3. The circumference of a circle J is 14π . What is the value of x ?

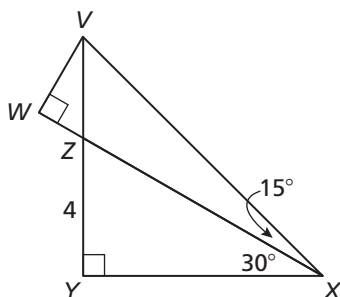


4. The area of semicircle D is 18π . What is the perimeter of $\triangle ABC$?

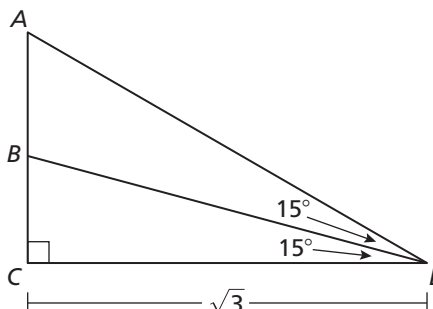


5. A circle with radius $\sqrt{2}$ is centered at the origin in a coordinate plane. How many points $P(x,y)$ can be found on the circle, such that x and y are integers? Find the coordinates of the points.

6. In the diagram below, $YZ = 4$. Find the side lengths of $\triangle VWX$, a 15° - 75° - 90° triangle. Round decimal answers to the nearest hundredth.



7. In the diagram below, $CD = \sqrt{3}$. Find the side lengths of $\triangle BCD$, a 15° - 75° - 90° triangle. Round decimal answers to the nearest hundredth, when necessary.





Puzzle Time

What Is Always In Its House, No Matter Where It Goes?

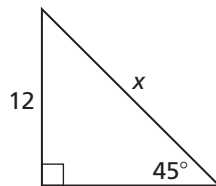
Circle the letter of each correct answer in the boxes below. The circled letters will spell out the answer to the riddle.

Complete the sentence.

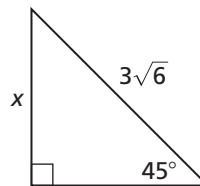
- In a 45° - 45° - 90° triangle, the hypotenuse is _____ times as long as each leg.
- A 45° - 45° - 90° triangle is a(n) _____ right triangle that can be formed by cutting a square in half.
- In a 30° - 60° - 90° triangle, the hypotenuse is twice as long as the shorter leg, and the longer leg is _____ times as long as the shorter leg.

Find the value of x . Write your answer in simplest radical form.

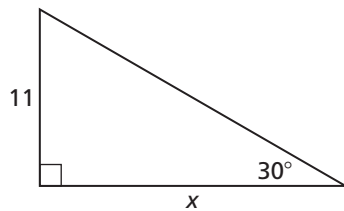
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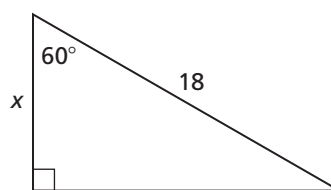
5.



6.



7.



A	L	A	T	E	U	R
$12\sqrt{2}$	$18\sqrt{3}$	3	$\sqrt{2}$	acute	9	$3\sqrt{3}$
T	L	O	V	E	N	Y
$11\sqrt{3}$	$\sqrt{3}$	4	$12\sqrt{3}$	isosceles	2	$11\sqrt{2}$