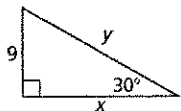


Special Right Triangles (30-60-90)

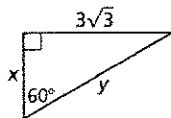
1. Draw and label the ratio of the sides on two special right triangles.

For #2 - 5, find the values of x and y . Label the ratios on the triangle. Leave your answers in reduced radical form.

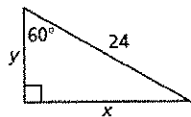
2. $x =$ _____ $y =$ _____



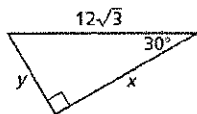
3. $x =$ _____ $y =$ _____



4. $x =$ _____ $y =$ _____

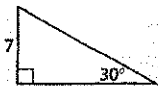


5. $x =$ _____ $y =$ _____



6. Describe and correct the error in finding the length of the hypotenuse

X



By the Triangle Sum Theorem (Theorem 5.1),
the measure of the third angle must be 60° .
So, the triangle is a 30° - 60° - 90° triangle.

Hypotenuse = shorter leg $\cdot \sqrt{3} = 7\sqrt{3}$

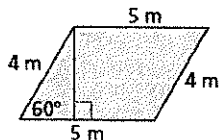
So, the length of the hypotenuse is $7\sqrt{3}$ units.

7. The side length of an equilateral triangle is 5 centimeters. Find the length of an altitude. Draw and label the triangle. Round to the nearest tenth.

Altitude = _____

8. Find the area of the figure. Round to the nearest tenth.

Area = _____

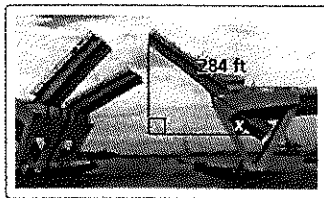


9. Each half of the drawbridge is about 284 feet long. How high does the drawbridge rise when x is 30° ? 45° ? 60° ?

30° Height = _____

45° Height = _____

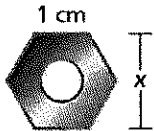
60° Height = _____



10. A nut is shaped like a regular hexagon with side lengths of 1 centimeter.

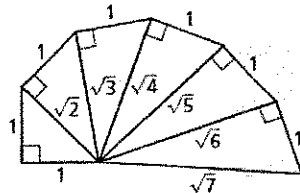
Find the value of x .

$x =$ _____



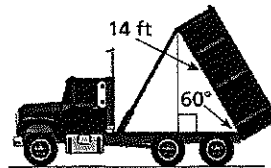
11. The diagram shows part of the *Wheel of Theodorus*.

Shade in all 30° - 60° - 90° triangles.



12. The body of a dump truck is raised to empty a load of sand. How high is the 14-foot-long body from the frame when it is tipped upward by a 60° angle?

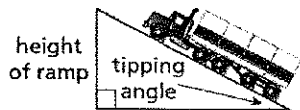
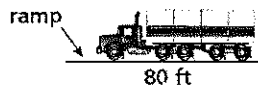
Height: _____



13. What is the ratio of the lengths of the sides of a 30° - 60° - 90° triangle? Draw and label the triangle.

Ratio: _____

14. A tipping platform is a ramp used to unload trucks. How high is the end of an 80-foot ramp when the tipping angle is 30° ? 60° ?



Draw and label the special right triangles.

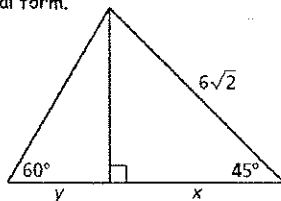
30° Height = _____

60° Height = _____

15. Find the values of x and y . Leave your answers in reduced radical form.

x = _____

y = _____



16. Find the values of x and y . Label the ratios on the triangle. Leave your answers in reduced radical form.

x = _____

y = _____

