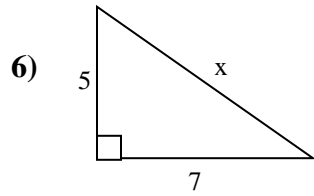
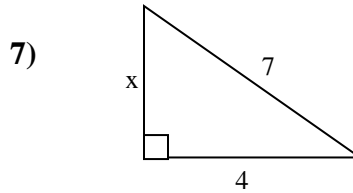


Unit 6: Right Triangles and Trigonometric Ratios

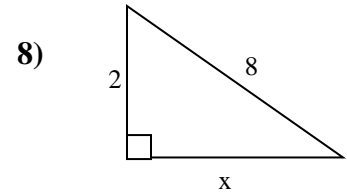
Use the Pythagorean Theorem to find the value of the variable. Simplify radicals if necessary.



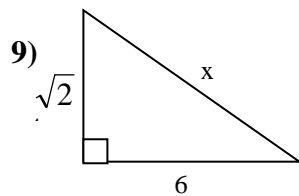
$x = \underline{\hspace{2cm}}$



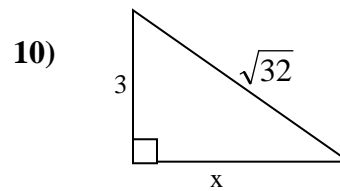
$x = \underline{\hspace{2cm}}$



$x = \underline{\hspace{2cm}}$



$x = \underline{\hspace{2cm}}$



$x = \underline{\hspace{2cm}}$

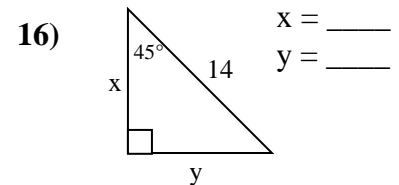
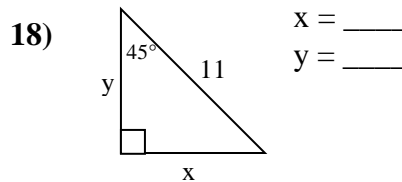
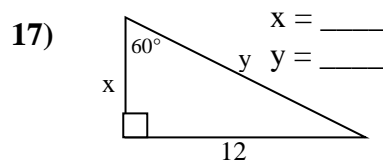
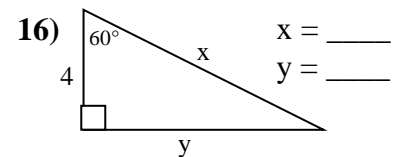
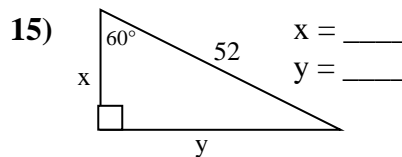
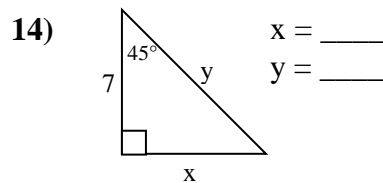
Use the Pythagorean Theorem to determine whether the triangle is right, obtuse or acute. Use an inequality or equation as proof.

11) 2, 11, 10

12) 3, 6, $3\sqrt{5}$

13) 8, 4, 7

Use special right triangles to find the value of the variables. Simplify radicals. Please show necessary work.



Fill in the table with exact values to help answer 17 - 19

degree	Sine x	Cosine X	Tangent X
45			
30			
60			

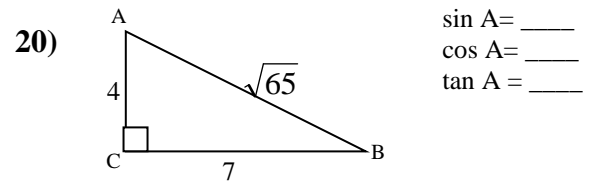
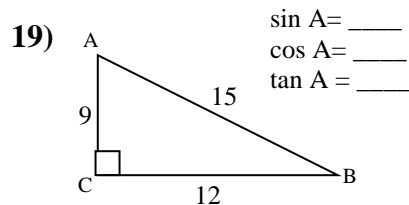
Use special right triangles to find the missing lengths. Draw and label a picture.

17) A 16 foot ladder leaning against a building forms a 60° angle with the ground. How far is base of the ladder from the wall? How far up the wall does the top of the ladder rest?

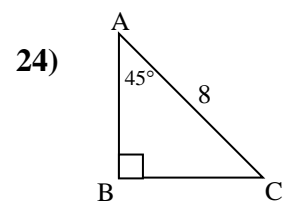
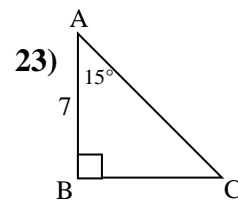
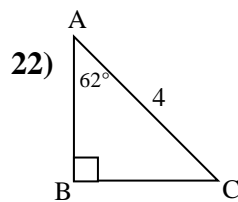
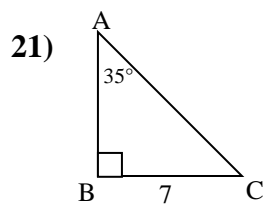
18) The diagonal of a square is 18 inches long. How long is each side of the square? What is the perimeter of the square? What is the area of the square?

19) Triangle DEF is an equilateral triangle with an altitude of $12\sqrt{3}$. Solve for DE

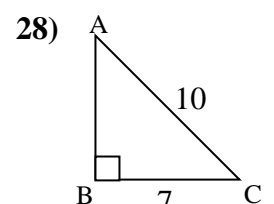
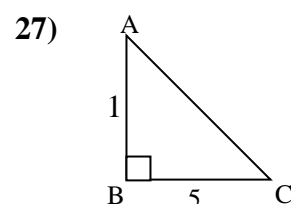
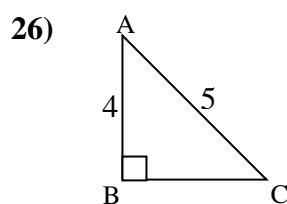
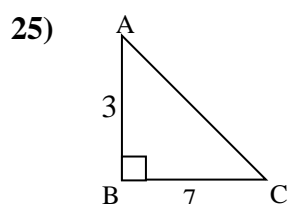
Write the sin, cos, and tan ratios of angle A. Simplify if necessary (this includes rationalizing the denominator).



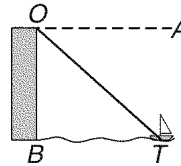
Find the two missing sides:



Find the two missing angles:



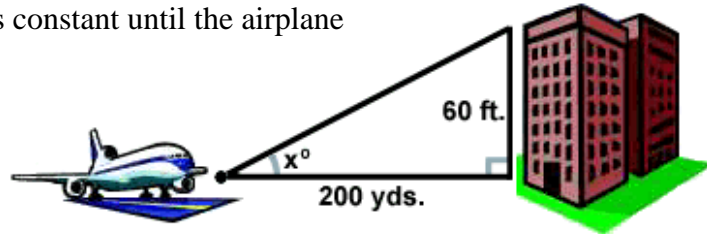
29) You are standing on a cliff 150 ft above the water. A sail boat is 25 feet from the base of the cliff. What is the measure of your angle of depression?



30) An airplane is flying at an altitude of 1000 m. From the plane the angle of depression of a tree on the ground is measured as 15° . What is the distance from the plane to the tree?

31) A man flies a kite with a 100 foot string. The angle of elevation of the string is 52° . How high off the ground is the kite?

32) An airplane takes off 200 yards in front of a 60 foot building. At what angle of elevation must the plane take off in order to avoid crashing into the building? Assume that the airplane flies in a straight line and the angle of elevation remains constant until the airplane flies over the building.



33) From the top of a vertical cliff 40 m high, the angle of depression of an object that 15 feet above the base of the cliff is 34° . How far is the object from the base of the cliff?

34) A 14 foot ladder is used to scale a 13 foot wall. At what angle of elevation must the ladder be situated in order to reach the top of the wall?

35) A ramp is needed to allow vehicles to climb a 2 foot wall. If the exterior angle is 148 degrees what is the length of the ramp?



