

Name _____

Period _____

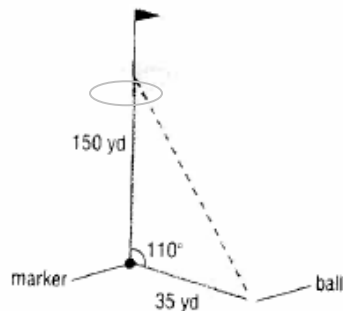
Alg 2 Trig Chapter 12 Applications

Mrs. Jensen

Solve the following problems using trigonometry from chapter 12 (right triangle trig, Law of Sines, or Law of Cosines). All work should be clear and complete. Draw a diagram if necessary. Answer the question in a complete sentence.

1. The eyes of a basketball player are 6 feet above the floor. The player is at the free-throw, which is 15 feet from the center of the basket rim. What is the angle of elevation from the player's eyes to the center of the rim? (The rim is 10 ft above the ground).

2. A golfer hits an errant tee shot that lands in the rough. A marker in the center of the fairway is 150 yards from the center of the green. While standing on the marker and facing the green, the golfer turns 110° toward his ball. He then paces off 35 yards to his ball. How far is the ball from the center of the green?



3. G.W. Thomas is designing a new parking garage for the city. The floors of the garage are to be 20 feet apart. The exit ramps between each pair of floors are to be 120 feet long. What is the measurement of the angle of elevation of each ramp?

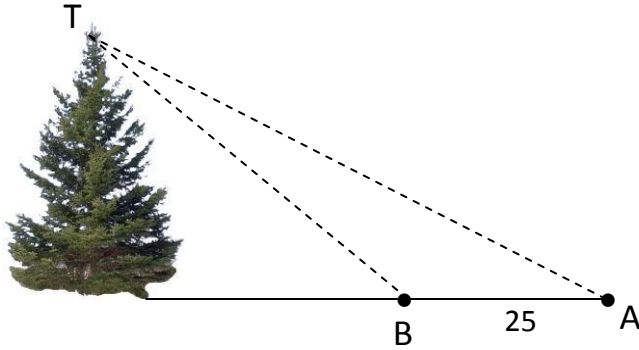
4. Adorning the top of the Board of Trade building in Chicago is a statue of Ceres, the Roman goddess of wheat. From the street level, two observations are taken 400 feet from the center of the building. The angle of elevation to the base of the statue is found to be 55.1° and the angle of elevation to the top of the statue is 56.5° . What is the height of the statue?

(Hint: pull the triangles apart)

5. A 98 foot extension ladder rests on top of a hook and ladder truck with its base 11 feet from the ground. When the angle of elevation of the ladder is 73° , how high up the building will it reach?

6. What is the area, to the nearest foot, of a triangular field that is 529 feet on one side and 849 feet on another side, with the angle between the sides measuring 102.7° ?

7. From a point (A) on the ground, the angle of elevation to the top of a tree (T) is 38° . From another point on the ground (B), 25 feet closer, the angle of elevation to the top of the tree is 48° . How far is it from point B to T ? How tall is the tree?

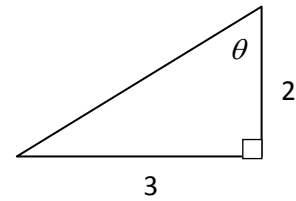


8. On a baseball diamond (square) with 90 foot sides, the pitcher's mound is 60.5 feet from home plate. How far is it from the pitchers to each base? DO NOT ASSUME THE POSITION OF THE PITCHER'S MOUND IS CENTERED!



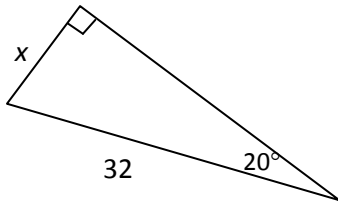
9. Find the value of the six trigonometric functions for angle θ .

$\sin \theta =$	$\cos \theta =$	$\tan \theta =$
$\csc \theta =$	$\sec \theta =$	$\cot \theta =$

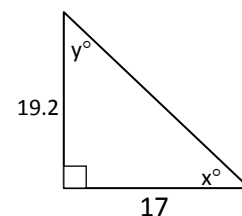


10. In a right triangle, $\angle A$ and $\angle B$ are acute. If $\tan A = \frac{11}{17}$, what is the $\cos A$?

11. Use a trigonometric function to find the value of x . Round to the nearest tenth if necessary.



12. Use trigonometric functions to find the values of x and y . Round to the nearest tenth if necessary.



In questions 13-18, solve the triangles. Check for a second solution when appropriate.
SHOW ALL WORK.

13. $\angle A = 52^\circ, a = 7, b = 3$

14. $\angle A = 40^\circ, \angle C = 90^\circ, b = 10$

15. $\angle B = 71^\circ, c = 6, a = 11$

16. $\angle A = 137^\circ, a = 10, b = 15$

17. $\angle A = 30^\circ, a = 3, b = 4$

18. $\angle A = 36^\circ, b = 6, c = 12$

