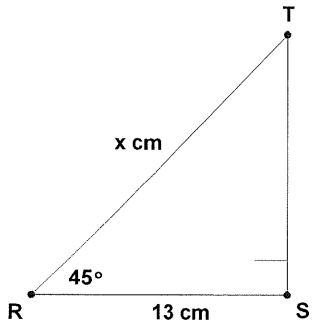
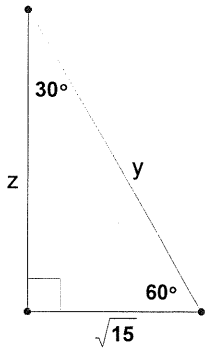
Name _____ Date: _____ Period: _____

CCGPS Analytic Geometry
Right Triangle Trigonometry Practice

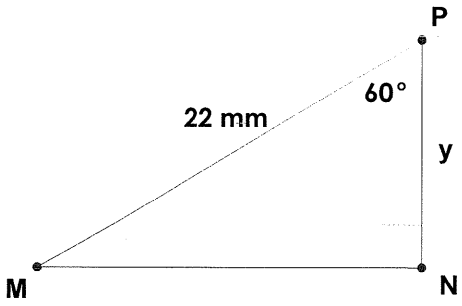
1. What is the value of x? Round your answer to the nearest tenth.



2. Find the lengths of y and z in the diagram below.



3. What is the value of y?



4. An isosceles right triangle has a one side length of 2 ft. What is the *exact* length of the hypotenuse?

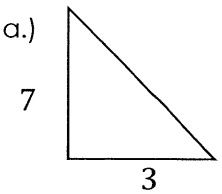
5. Given the length of the hypotenuse, find the length of the legs of each 45-45-90 triangle.
A. 14 B. $3\sqrt{14}$

6. Determine if the following are obtuse, acute, or right triangles. Use the Pythagorean Theorem to prove your work.

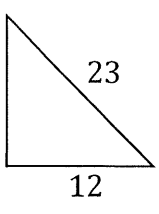
a.) 7, 12, 9 b.) $2\sqrt{8}$, 8, 9 c.) 20, 21, 29

7. Use the Pythagorean Theorem to solve for the missing side lengths. (They are all right triangles)

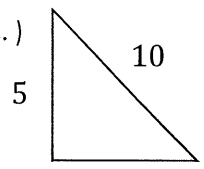
a.)



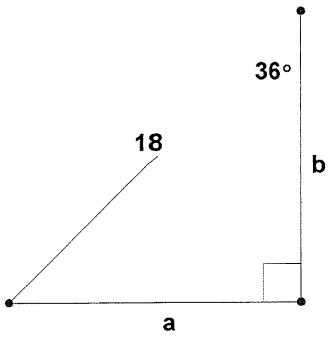
b.)



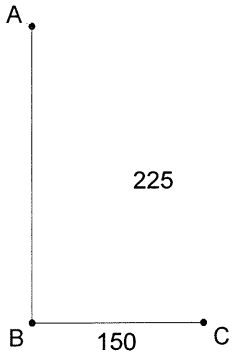
c.)



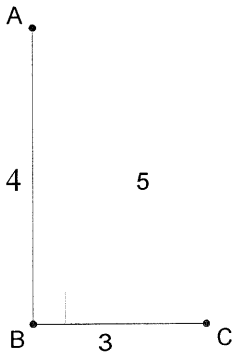
8. What is the value of a and b to the nearest tenth?



9. What is the measure of $\angle A$ to the nearest degree?



10. Suppose ΔABC is a right triangle with ∠B the right angle. Explain the relationship between Tangent of angle A and Tangent of angle C.



11. Explain the relationships between the sine and cosine of complementary (the 2 acute angles) angles. (Use triangle ABC above and find sinA and cosC.

12. In right ΔACB, AC = 3, BC = 4, and AB = 5. Draw a figure.

A. Find the exact value of sin B. _____

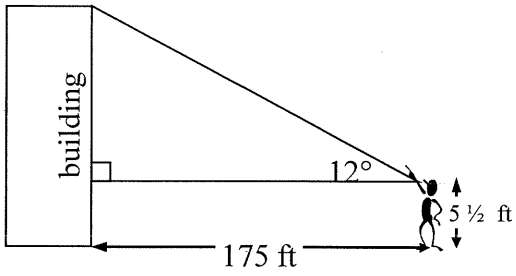
B. Find the exact value of cos A. _____

C. Find the exact value of tan A. _____

D. Find measurement of $\angle A$ (to the nearest degree). _____

13. A 24 foot ladder leans against a building and makes an angle of 68° with the ground. To the nearest foot, how far up from the bottom of the building is the top of the ladder?

14. A man that is 5 ½ feet tall walks 175 feet from a building and looks at the highest point on the building. The angle formed by the person's line of sight and the horizontal is 12°. To the nearest foot, how tall is the building?



15. You are building a tent. The rope from the top of the tent pole to the ground measures 5 ft long. The angle of elevation is 68°.

    A. Find the height of the pole to the nearest thousandth.

    B. Find the distance from the base of the pole to the stake to the nearest thousandth.

16. If a 200 foot tree casts a 118 foot shadow, what is the angle of elevation of the sun? *Sketch a diagram, set up an equation and solve.*

17. A plane is flying away from you. Right now, you can see it at an angle of elevation of 56°. Thirteen seconds later, you can see it an angle of 53°. If you know it's at an altitude of 8,000 feet, how far has it traveled in that time? B) How fast is it traveling?