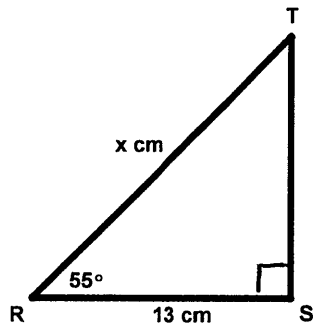
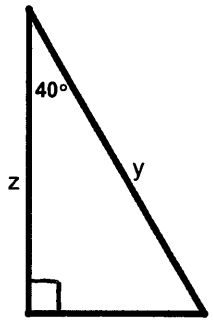
Name _____ Date: _____ Period: _____

Analytic Geometry **Right Triangle Trigonometry Practice**

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



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



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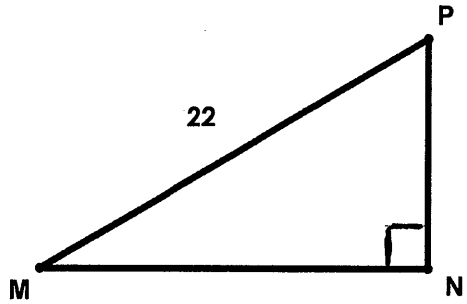
3. What is the measure of $\angle P$?



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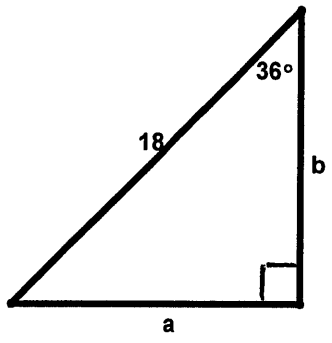
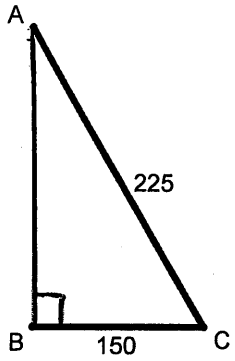
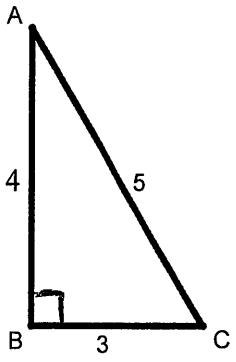
4. What is the value of a and b to the nearest tenth?



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



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



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

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

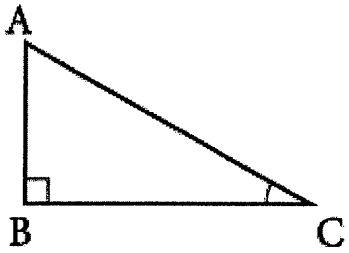
   A. Find the exact value of sin B. _____

   B. Find the exact value of cos A. _____

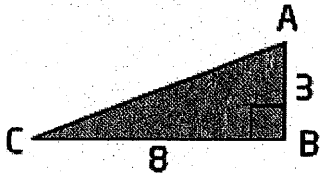
   C. Find the exact value of tan A. _____

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

9. In △ABC, AB = 8 cm and BC = 11 cm. Determine the tangent ratio of ∠A, to the nearest thousandth.

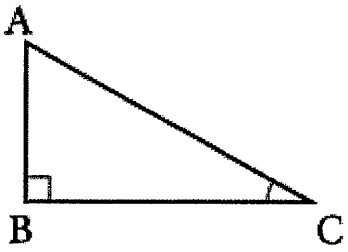


10. Determine the measure of ∠C, to the nearest degree.



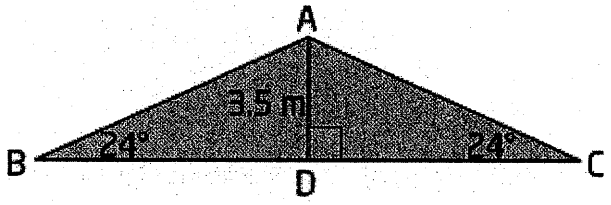
11.

In the triangle, BC = 12 cm and $\sin A = 0.58\overline{3}$. What is the length of the hypotenuse, to the nearest tenth of a centimeter?



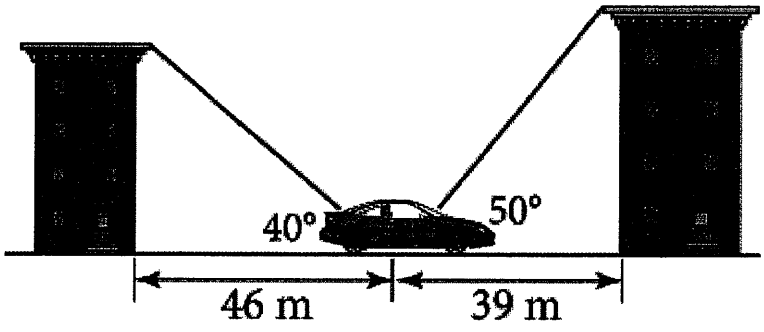
12.

A roof is shaped like an isosceles triangle. The slope of the roof makes an angle of 24° with the horizontal, and has an altitude of 3.5 m. Determine the width of the roof, to the nearest thousandth of a meter.



13.

Matthew parks his car between Karen's and Patrick's apartment buildings. The car is 46 m in front of Karen's apartment building. The angle of elevation from the car to the top of the building is 40°. Matthew's car is 39 m behind Patrick's apartment building. The angle of elevation from the car to the top of the building is 50°.

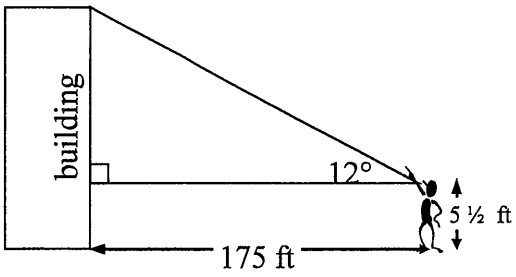


a) Determine the height of each building, to the nearest meter.

b) State which building is taller, and by how much.

14. 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?

15. 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?



16. 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.

17. 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.*

18. 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?