

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

**Word problems.**

- 1) A guy wire is attached to the top of a 75 foot tower and meets the ground at a  $65^\circ$  angle. How long is the wire?
  
  
  
  
  
  
  
  
  
  
- 2) When the sun's angle of elevation is  $57^\circ$ , a building casts a shadow 21 meters long. How high is the building?
  
  
  
  
  
  
  
  
  
  
- 3) A kite is flying at an angle of elevation of about  $40^\circ$ . All 80 meters of string have been let out. Ignoring the sag in the string, find the height of the kite.
  
  
  
  
  
  
  
  
  
  
- 4) A man stands at the top of a 105 foot light house and sees a boat. The angle of depression to sight the boat is  $37^\circ$ , find the distance between the base of the light house and the boat.
  
  
  
  
  
  
  
  
  
  
- 5) An observer in an airplane at a height of 500 meters sees a car at an angle of depression of  $31^\circ$ . If the plane is over a barn, how far is the car from the barn?

- 6) From a point 340 meters from the base of the Hoover Dam, the angle of elevation to the top of the dam is  $33^\circ$ . Find the height of the dam to the nearest meter.
- 7) The Pyramid of the Sun in the ancient Mexican city of Teotihuacan was unearthed from 1904 – 1910. From a point on the ground 300 feet from the center of its square base, the angle of elevation to its top would have been  $31^\circ$ . What was the height of the pyramid?

**Complete the following statements with always, sometimes, or never. Explain your answer with complete sentences.**

- 8) The tangent of an angle is \_\_\_\_\_ less than 1.
- 9) The angle of elevation from your eye to the top of a twenty-foot flagpole \_\_\_\_\_ gets smaller as you walk towards the flagpole.
- 10) Given the measure of an acute angle in a right triangle and the length of one of the triangle's legs, you can \_\_\_\_\_ use trigonometry to find the length of the hypotenuse.
- 11) The angle of depression from the top of a building to a car traveling towards the building \_\_\_\_\_ increases as the car travels closer.