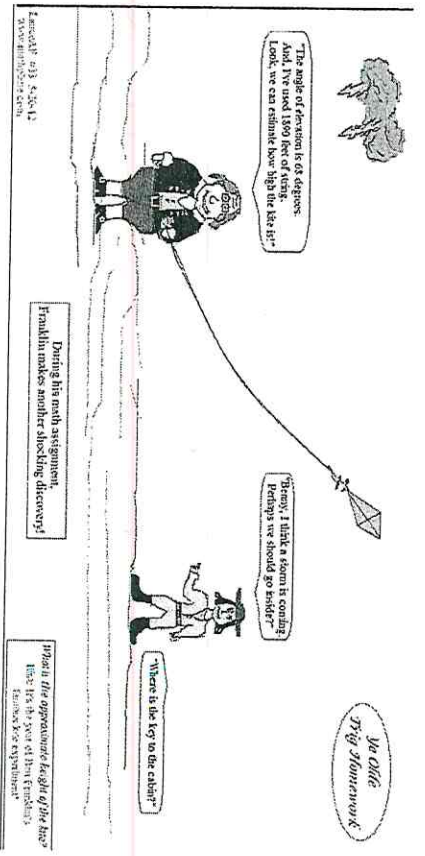


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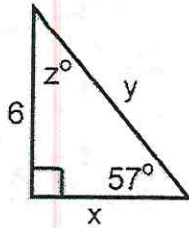
**UNIT 9 -- Section 8-7: Applications of Trigonometry**

Draw the picture represented by the information in each problem. Assume that buildings, trees, etc. are all on level ground so that you're dealing with right triangles. Show work to calculate the indicated angle (to the nearest degree) or length (to the nearest tenth).

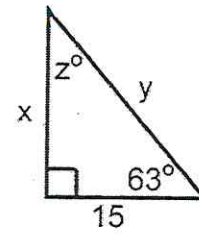
1. The angle of elevation of the top of a building from a point 100 feet away from the building is  $65^\circ$ . What is the height of the building?
2. The Sears Tower stands 1,451 feet tall. A person across the street is 30 feet away from the foot of the tower. What is the angle of elevation?
3. An airplane is flying at a height of 2 miles above the ground. The distance along the ground from the airplane to an airport is 5 miles. What is the angle of depression?
4. The angle of depression of a buoy from a point on a lighthouse 100 feet above the surface of the water is  $3^\circ$ . What is the distance between the buoy and lighthouse?

Find the value of each variable to solve the right triangle.

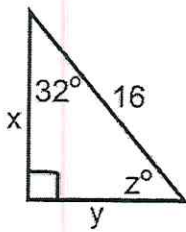
1.  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_  
 $z =$  \_\_\_\_\_



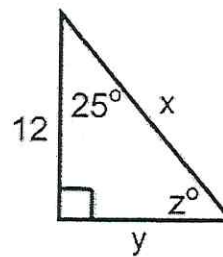
2.  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_  
 $z =$  \_\_\_\_\_



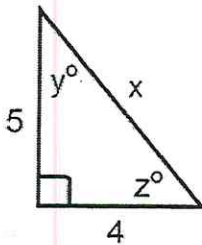
3.  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_  
 $z =$  \_\_\_\_\_



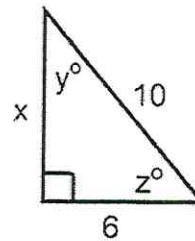
4.  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_  
 $z =$  \_\_\_\_\_



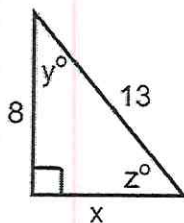
5.  $x =$  \_\_\_\_\_  
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 $z =$  \_\_\_\_\_



6.  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_  
 $z =$  \_\_\_\_\_



7.  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_  
 $z =$  \_\_\_\_\_



8.  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_  
 $z =$  \_\_\_\_\_

