

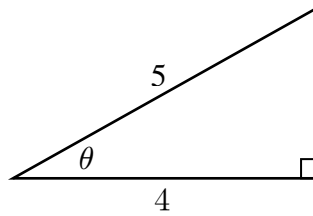
# Algebra Workshop

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

## Worksheet 9

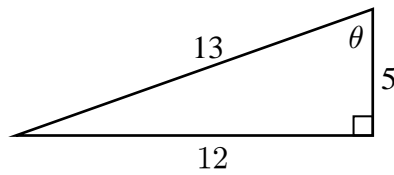
1. Find the equation for the line through the points  $(1, 2)$  and  $(3, 8)$ .
2. Consider the line  $2x - 3y = 12$ .
  - (a) What is the slope of this line?
  - (b) What is the  $y$ -intercept of this line?
  - (c) What is the  $x$ -intercept of this line?
3. In 2005, a small bookstore sold 10,000 books, and in 2008, the same bookstore sold 13,000 books. Assuming that the number of books sold grows linearly, how many books do you expect the store to sell in 2015?

4. Consider the following right triangle:



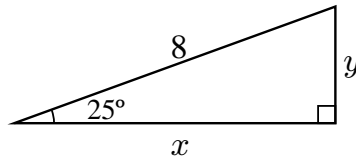
- (a) Determine the length of the side opposite  $\theta$ .
- (b) What is  $\sin \theta$ ?
- (c) What is  $\cos \theta$ ?
- (d) What is  $\tan \theta$ ?

5. Consider the following right triangle:



- (a) What is  $\sin \theta$ ?
- (b) What is  $\cos \theta$ ?
- (c) What is  $\tan \theta$ ?

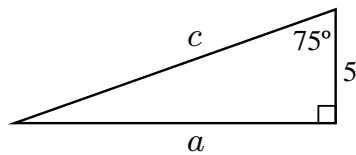
6. Consider the following right triangle:



(a) What is  $x$ ?

(b) What is  $y$ ?

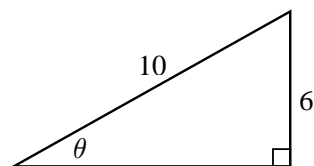
7. Consider the following right triangle:



(a) What is  $a$ ?

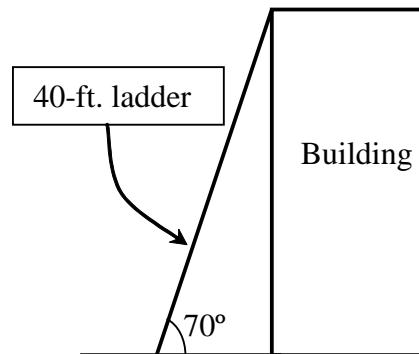
(b) What is  $c$ ?

8. Consider the following right triangle:



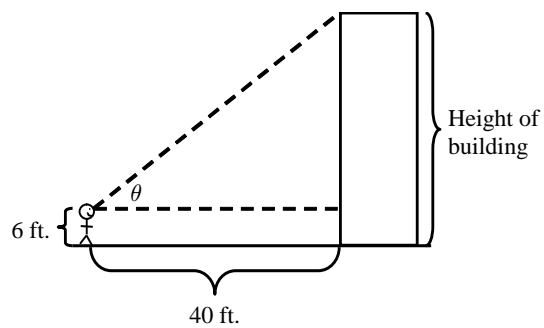
Determine the measure of the angle  $\theta$ .

9. A ladder leans against a building as shown in the following picture.



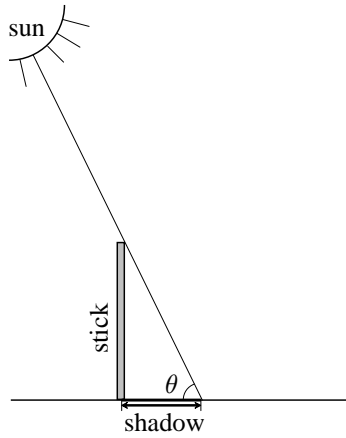
Determine the height of the building.

10. Thomas wishes to determine the height of a building. He stands 40 feet away from the building as shown below:



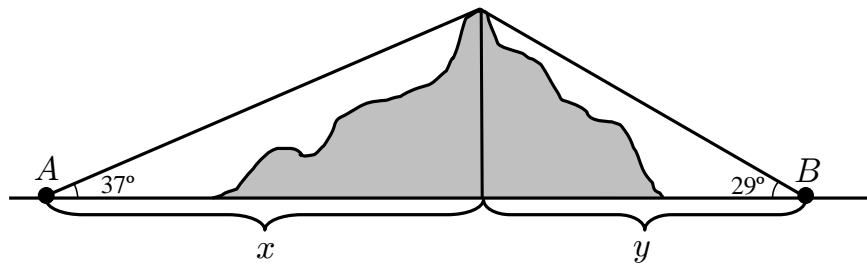
If  $\theta = 37^\circ$ , what is the height of the building? (Remember to include Thomas's height.)

11. A stick casts a shadow as shown in the following picture:



If the stick is 5 feet tall, and the shadow is 2 feet long, what is the measure of the angle  $\theta$ ?

12. A mountain is between two cities A and B as shown in the following picture:



If the mountain is one mile high, determine the distance between the two cities.