

## Sine and Cosine Review (Assignment 8)

Draw and label a right triangle that represents each situation. Then answer the question.

1. A projectile is fired up with an initial velocity of 50 meters/second on a trajectory that makes a 45 degree angle with the  $x$ -axis. What are the horizontal and vertical components of the initial velocity?

2. A projectile is fired up with an initial velocity of 82 feet/second on a trajectory that makes a 10 degree angle with the  $x$ -axis. What are the horizontal and vertical components of the initial velocity?

3. A projectile is fired down with an initial velocity of 25 feet/second on a trajectory that makes a 52 degree angle with the  $y$ -axis. What are the horizontal and vertical components of the initial velocity?

4. A projectile is fired up with an initial velocity of 31 meters/second on a trajectory that makes a 90 degree angle with the  $x$ -axis. What are the horizontal and vertical components of the initial velocity?

5. A projectile is fired down with an initial velocity of 19 yard/second on a trajectory that makes an 85 degree angle with the  $y$ -axis. What are the horizontal and vertical components of the initial velocity?

## Velocity and Acceleration Review

6. If a bicycle moves with a velocity of 15 ft/sec for 33 seconds, how far has it gone?

7. Over the course of two minutes you walk with a constant velocity of 10 meters/second. How far have you walked?

8. a) A ball is tossed straight up into the air from a height of 5 feet above the ground with an initial velocity of 30 feet/second. How high will the ball be above the ground after 2 seconds?

b) When will the ball be 10 feet above the ground?

c) What is the maximum height that the ball will reach?

d) How long will the ball be in the air if it is caught at the exact same height at which it was released?

e) How long will the ball be in the air if it is left to hit the ground?