Name _____ Pd _____ Date _____

Projectile Motion Worksheet **/ 62**

1. Rank the vectors from largest to smallest vertical (y) component: 10 m/s @ 25°, 10 m/s @ 40°, 10 m/s @ 55°, 10 m/s @ 70°. 2 pts

2. Why does a bowling ball move without acceleration when it rolls along a bowling alley? 2pts

3. In the absence of air resistance, why does the horizontal component of velocity for a projectile such as a bullet remain constant while the vertical component changes? 2pts

4. How does the downward component of projectile motion compare with free fall motion? 2pts

5. Use terms we learned about one dimensional motion to describe projectile motion: 1 pt ea

   a. vertical component –

   b. horizontal component –

6. A ball is thrown horizontally at a height of 2.2 meters at a velocity of 65 m/s. Assume no air resistance.
   a. How long until the ball reaches the ground? 2 pts

   b. How far did the ball travel horizontally when it hit the ground? 2 pts.

7. A bullet is fired horizontally at a height of 1.3 meters at a velocity of 950 m/s. Assume no air resistance.
   a. How long until the bullet reaches the ground? 2 pts

   b. How far did the bullet travel horizontally when it hit the ground? 2 pts.

8. A cannonball is fired at a 45.0° angle and an initial velocity of 625 m/s. Assume no air resistance.
   a. What is the vertical component of the cannonball's velocity? 2 pts.

   b. What is the horizontal component of the cannonball's velocity? 2 pts.

   c. How long until the cannonball hits the ground? 2 pts.

   d. How high did the cannonball travel? 2 pts.

   e. How far did the cannonball travel horizontally when it hit the ground? 2 pts.

9. A baseball is thrown at a 22.5° angle and an initial velocity of 65 m/s. Assume no air resistance.
   a. What is the vertical component of the ball's velocity? 2pts.

   b. What is the horizontal component of the ball's velocity? 2pts.

   c. How long until the ball hits the ground? 2 pts

   d. How high did the ball travel? 2 pts

   e. How far did the ball travel horizontally when it hit the ground? 2 pts.

10. Use the range and max height equations to calculate the horizontal distance a baseball travels if the initial velocity is 65 m/s and the ball is thrown at an angle of: 4 pts / angle

Angle	Range	Max Height
30°		
40°		

45°		
50°		

55°		
60°		