Physics 10
Angle Projectiles Worksheet

1. A rocket is shot off the ground at an angle of 30.0 degrees from the ground at a speed of 60.0 m/s.

   a) Determine the x- and y-components of the initial velocity

   b) Determine the time it takes the rocket to reach its maximum height.

   c) Determine the total time the rocket is in the air.

   d) Determine the speed in the x-direction and y-direction at the rocket's maximum height.

   e) Determine the maximum height of the rocket.

   f) Determine the range of the rocket.

2. During a pumpkin sling shot event, a pumpkin is launched horizontally off a hay pile and stays in the air for 2.8 seconds. You can assume air resistance is negligible.

    a) What is the acceleration of the pumpkin in the horizontal direction?

    b) What is the acceleration of the pumpkin in the vertical direction?

    c) How high is the hay pile?

    d) If the pumpkin lands 12 meters away from the base of the hay pile, what is the speed of the pumpkin as it leaves the slingshot?

    e) What is the final speed of the pumpkin?

3. The pumpkin sling shot is now brought to the ground (right next to the hay pile) and shot off at an angle of 75° at a speed of 8.0 m/s.

    a. How long does it take the pumpkin to reach its maximum height?

    b. What is the maximum height of the pumpkin?

    c. What is the pumpkin's speed at its maximum height?

    d. How long is the pumpkin in the air?

    e. How far away from the hay pile does the pumpkin land?

    f. What is the final speed of the pumpkin right before it hits the ground?