Study Guide

Name: _____

PROJECTILE MOTION WORKSHEET

1. A ball is kicked horizontally at 8.0 m/s from a cliff 80m high. How far from the base of the cliff will the stone strike the ground?

2. How long will it take a shell fired from a cliff at an initial velocity of 800 m/s at an angle 30° below the horizontal to reach the ground 150m below?

3. Jason Kendall throws a baseball with a horizontal component of velocity of 25 m/s. It takes 3.00s to come back to its original height. Calculate its horizontal range, its initial vertical component of velocity and its initial angle of projection.

4. An egg is thrown horizontally off the roof of SI, which is 60 meters high, with an initial velocity of 6.5 m/s. How long does it take to hit the ground? How far does it go in the x direction?

5. A diver jumps **UP** off a pier at an angle of 25_o with an initial velocity of 3.2 m/s. How far from the pier will the diver hit the water (Assume the level of water is the same as the pier)

6. A bullet is fired at an angle of 60_o with an initial velocity of 200.0 m/s. How long is the bullet in the air? What is the maximum height reached by the bullet?

8. A bullet is fired at an angle of 45_o. Neglecting air resistance, what is the direction of acceleration during the flight of the bullet?

a) upward
b) downward
c) dependent on the initial velocity
d) at a 45_o angle

9. A golfer drives her golf ball from the tee down the fairway in a high arcing shot. When the ball is at the highest point of its flight:

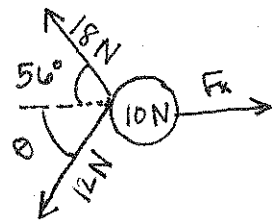
a. the velocity and acceleration are both zero
b. the x-velocity is zero and the y-velocity is zero
c. the x-velocity is non-zero, but the y-velocity is zero
d. the velocity is non-zero, but the acceleration is zero

10. A bullet is fired horizontally from a gun. At the same time a similar bullet is dropped from the same height. The fired bullet will:

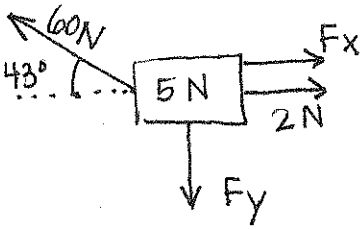
a) hit the ground first
b) hit the ground second
c) hit at the same time as the dropped bullet
d) never hit the ground

Forces in Equilibrium

1. Find Fx & θ



2. Find Fx & Fy



3. Find F_y, F_{x_1}, F_{x_2}