Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Physics 11

**Worksheet 3.4 Part 2**

**Initial Velocity at an Angle**

1. A golfer strikes a golf ball, giving it a velocity of 48 m/s at an angle of 50o above the horizontal.
   1. What are the vertical and horizontal components of the ball’s initial velocity?
   2. How long is the ball in the air?
   3. What is the horizontal distance covered by the ball while in flight?
   4. What velocity does the ball have at the top of its trajectory?
2. A pebble is fired from a slingshot with a velocity of 30 m/s at an angle of 30o above the horizontal. If its flight is interrupted by a vertical wall 12 m away, at what height does it hit the wall?
3. A diver takes off with a speed of 8 m/s, at an angle of 30o above the horizontal. The diving board is 3 m high. How long is it until she strikes the water?
4. A football is thrown up at a certain angle. The ball is in the air 2.0 s and strikes the ground 30 m from the thrower. What was the ball’s total initial velocity?

**Answers:** 1a) vx=30.9 m/s; vy=36.8 m/s 1b) 7.5 s 1c) 231.8 m 1d) 30.9 m/s horizontal

2) dy=5.9 m 3) t=1.3 s 4) 17.9 m/s [33.2o above horizontal]