Projectile Motion Worksheet 1

1. **A member of the JCHS soccer futbol club kicks a ball at an angle of 38° off the ground. The initial speed of the ball is 15 m/s.**
   a. How long is the ball in the air?
   b. How far down the field does the ball land?
   c. What is the max height the ball reached?

2. **Coach Hyde tees off on a 186 yard (170.08 m) par 3 golf hole. Coach Hyde swings the club full go at roughly 51 m/s, and grabs the 7 iron out of the bag which has a loft of 30.5°.**
   a. How far will Coach Hyde's golf shot travel?
   b. Did he select the right club? Why or why not?

3. **A punter in an American football game kicks a ball from the goal line (0 yrd line). The punter launches it at 60.0° from the horizontal at a velocity of +25.0 m/s. [1.0937 yard = 1 meter]**
   a. What is the hang time of the punt?
   b. How far down field does the ball land, excluding roll and bounce and all that.

4. **Ever wondered how far you could throw a ball on mars? The acceleration of gravity on mars is 3.721 m/s². I'm thinking that the average person could throw like 45 – 50 mph. So let's assume the average velocity of human's throwing a ball is 47 mph. [1 mph = 0.44704 m/s].**
   a. How far can the average person throw a ball on earth if launched at an angle of 45°.
   b. How far could the average person throw a ball launched at 45° above the horizontal @ 47 mph.
   c. How long would the ball be in the air on Earth?
   d. How long would the ball be in the air on Mars?
   e. How high above the Martian surface would the ball reach?
   f. How high above Earth's surface would the ball reach?
   g. Would you say there is a significant increase in one's ability to throw an object on Mars?