

Name _____

Date _____

Unit 9 Advanced Algebra- Assignment #9

Projectile Motion- We are ignoring air resistance!

For all problems please do the following:

Draw the right triangle that is associated with the problem

Write the parametric Equations associated with the problems

1) A golfer swings a 7 iron club with an angle of 38° with an initial velocity of 122 feet/second. He is on level ground.

- a) How long is the ball in the air?
- b) What is the maximum height that the ball reaches?
- c) What is the x position at this maximum height?
- d) How much time elapses for the ball to get to the maximum height?
- f) What is the angle at which the ball lands?

2) Jo- Jo the circus boy is a human cannonball. He is fired out of a cannon 10 feet above the ground at a speed of 40 feet per second. The cannon is tilted at an angle of 60° . His net hangs 5 feet above the ground.

- a) Where does his net need to be positioned (horizontal displacement) so that he will land safely?
- b) How long is he in the air?
- c) What is the maximum height that he reaches?
- d) What is the x position at this maximum height?
- e) How much time elapses for him to get to the maximum height?
- f) What is the angle at which he lands?

3) A t-shirt is launched at a 62 degree angle. It has an initial velocity of 86 feet per second. The height of the launch is 5 feet.

a) How long is the t-shirt in the air?

b) What is the maximum height that it reaches?

d) What is the x position at this maximum height?

e) How much time elapses for it to get to the maximum height?

f) What is the angle at which it lands?

g) What is the horizontal distance that the t-shirt travels.

Extension:

If you launch a ball at a particular angle and initial velocity, you can determine how far it will travel. Is there another angle at which a ball can be launched, with the same initial velocity, that will cause the ball to travel exactly the same horizontal distance?