Directions: The goal of this activity is to diagram out the situations listed below and get a plane of attack to answer the questions.

1. A cannon ball is shot horizontally at a speed of 200.0 m/s from the top of a cliff 78.4 m high.

Draw a diagram of the activity on the in the space provided and label all knowns/unknowns

a) How long does it take the cannon ball to reach the bottom of the cliff?

What are you trying to find? _____

How will you solve this problem? _____

_____

Does it make a difference in the amount of time if the cannon ball was dropped instead of thrown horizontally? Why or why not?

_____

b) How far from the base of the cliff does the cannon ball strike the ground?

What are you trying to find? _____

How will you solve this problem? _____

_____

c) What are the horizontal and vertical components of the velocity of the cannon ball as it hits the ground?

What are you trying to find? _____

How will you solve this problem? _____

_____

d) What is the final speed of the cannon ball as it hits the ground?

What are you trying to find? _____

How will you solve this problem? _____

_____

Does the horizontal velocity change as the cannon ball falls from the cliff? Give reason to support your answer.

_____

What if the cliff was twice as high. How would this affect:

      Amount of time before the cannon ball hits the ground? _____

      The horizontal velocity? _____

      The vertical velocity? _____