Written Assignment 3 (10 pts)

Assignment Level Student Learning Objectives:

In this assignment, students will:

- Summarize the problem with a visual drawing and verbal description.
- Assess the problem by listing the data that you are given as well as listing the data that you will need to find.
- Analyze the problem with identification of problem type and listing relevant equations.
- Use mathematical techniques to solve the problem.

Assignment Purpose:

The purpose of this assignment is to demonstrate the problem-solving skills that you have learned up until this point of the course. In addition, this assignment will allow you to display your current knowledge of understanding physical situations as well as the relationship between real life physical situations and fundamental physics concepts discussed in the course.

Instructions:

Attached you will find a problem statement as well as a pre-formatted document, for your convenience. All **algebraic manipulations must be completed before introducing any numeric quantities**. Note: The creation of ratios for solving systems of equations is permissible.

Rubric:

Written Assignments

Criteria	Ratings				Pts
Summarize Summarize the physical situation with a visual drawing or verbal description.	1 pts **Meets Expectations** Verbal summary or visual drawing is complete and correct.			0 pts **No Credit** Section Missing or Incomplete	1 pts
Assess List the information given in the problem under "Have" and the information you are solving for under "Want".	1 pts **Meets Expectations** All information is listed.		0 pts **No Credit** Section Missing or Incomplete		1 pts
Analyze Label the problem type (i.e. Conservation of Energy, Kinematics, Fluid Motion, etc.) and list relevant equations.	1 pts **Meets Expectations** Problem type is stated. Relevant equations have been listed.			0 pts **No Credit** Section Missing or Incomplete	1 pts
Use Solve the problem.	6 pts **Exceeds Expectations** Correct solution with logical work provided. No numbers entered (unless to create ratio) prior to final line.	4 pts **Meets Expectations** Some issues with logic or algebra. Overall, good attempt to solve the problem. Minor errors. No numbers entered (unless to create ratio) prior to final line.	2 pts **Needs Improvement** Incorrect logic. Severe algebraic issues. Obvious lack of understanding or lack of attempt to solve the problem. Problem Incomplete.	0 pts **No Credit** You did not attempt to solve the problem. Obvious copy from Chegg.	6 pts
Justified Starting Point Starting equation comes directly from the formula sheet or includes a comment with justification.	1 pts **Meets Expectations** Starting equations come directly from the formula sheet or have commented justification.		0 pts **No Credit** Starting equations are either not from the formula sheet or do not have commented justification.		1 pts
					Total Points: 10

(UMKC PHYS 210 SP 2025)

You come across an article discussing the power of volcanic eruptions to launch debris into the air. Curious, you decide to calculate how far away you will find debris from the eruption site. You focus on Mount St. Helens, which has an elevation of approximately 2,550 (above sea level) but rises 1,400 above the surrounding terrain. Assuming the rock that travels the farthest is launched at an angle of 65° relative to the horizontal at a speed of 143 m/s, what is the furthest distance you will be able to locate debris?

Step 1: Summarize (1 pt)

A. Draw a diagram of the rocks motion:

B. Provide a brief verbal description of the problem.

Step 2: Assess the problem statement(1 pt)

Given Information **Solving For**

Step 3: Analyze the problem (1 pt)

Problem Type: _____

Relevant Equations:

Step 4: Solve the Problem.

Solve problem and provide written explanation of each step that is not simple algebraic manipulation (6 pts)

Justify the starting equation (1 pt)

Solve: