

Name _____ Instructor name _____

You must show and explain all work neat and organized to receive credit. Please show each step for calculations. YOU MUST TURN IN THIS SHEET to have your assignment graded.

1. Are all periodic motions simple harmonic? Explain and give an example of a periodic motion that is not simple harmonic. (3 pts)

2. For simple harmonic motion, how are the acceleration and displacement? Support your answer using relevant equations with detailed calculations. (5 pts)

3. (a) If you were to plot y versus m using the equation $y = (g/k) m + y_0$ please explain how you would calculate the value for k ? (b) Which method would you use? **Please support the answer with relevant equations and explanations.** (6 pts)

4. (a) What is a simple pendulum? (b) If you suspend a baseball bat from one end and let it swing back and forth, does it make a simple pendulum? (c) Under what conditions does an oscillating mass tied to a string constitute a simple pendulum? (6 pts)