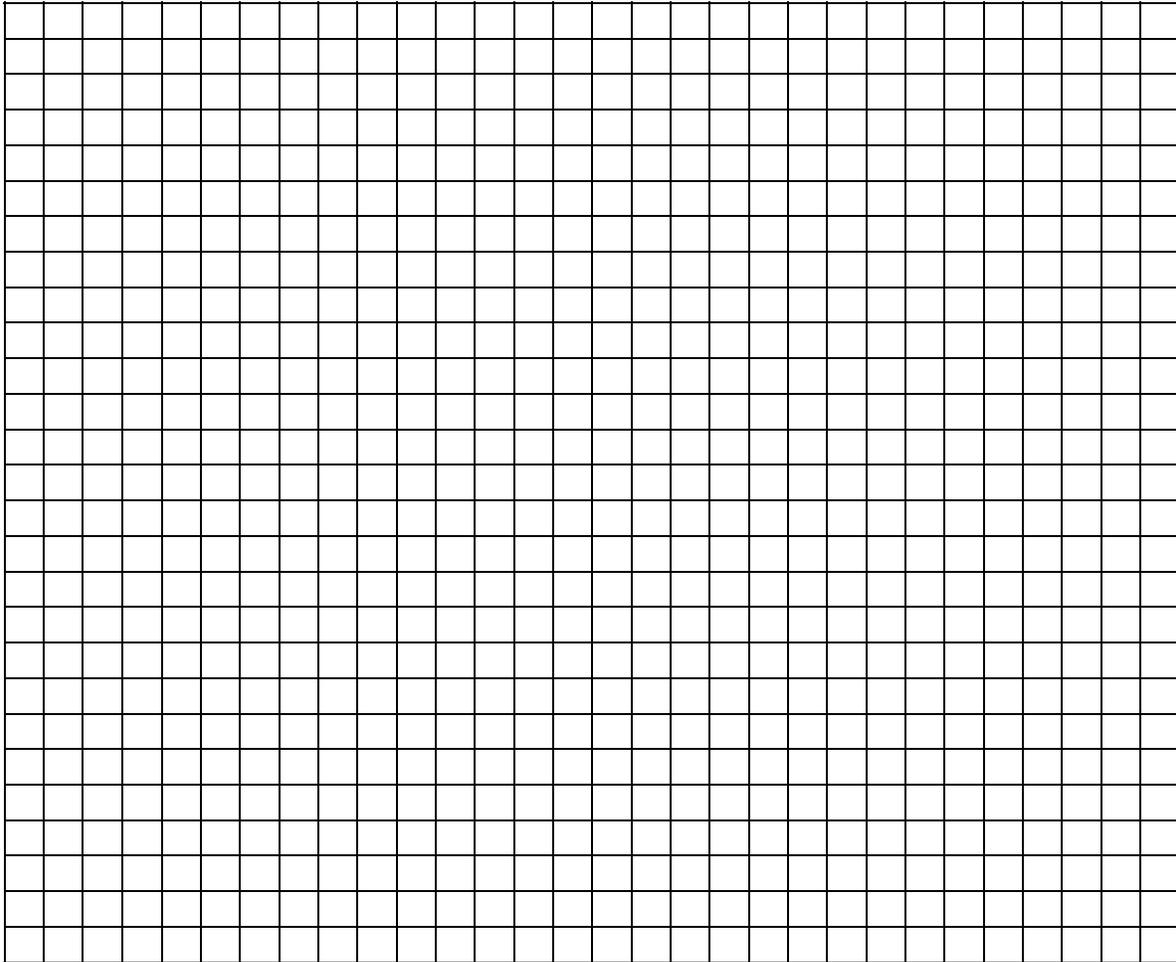


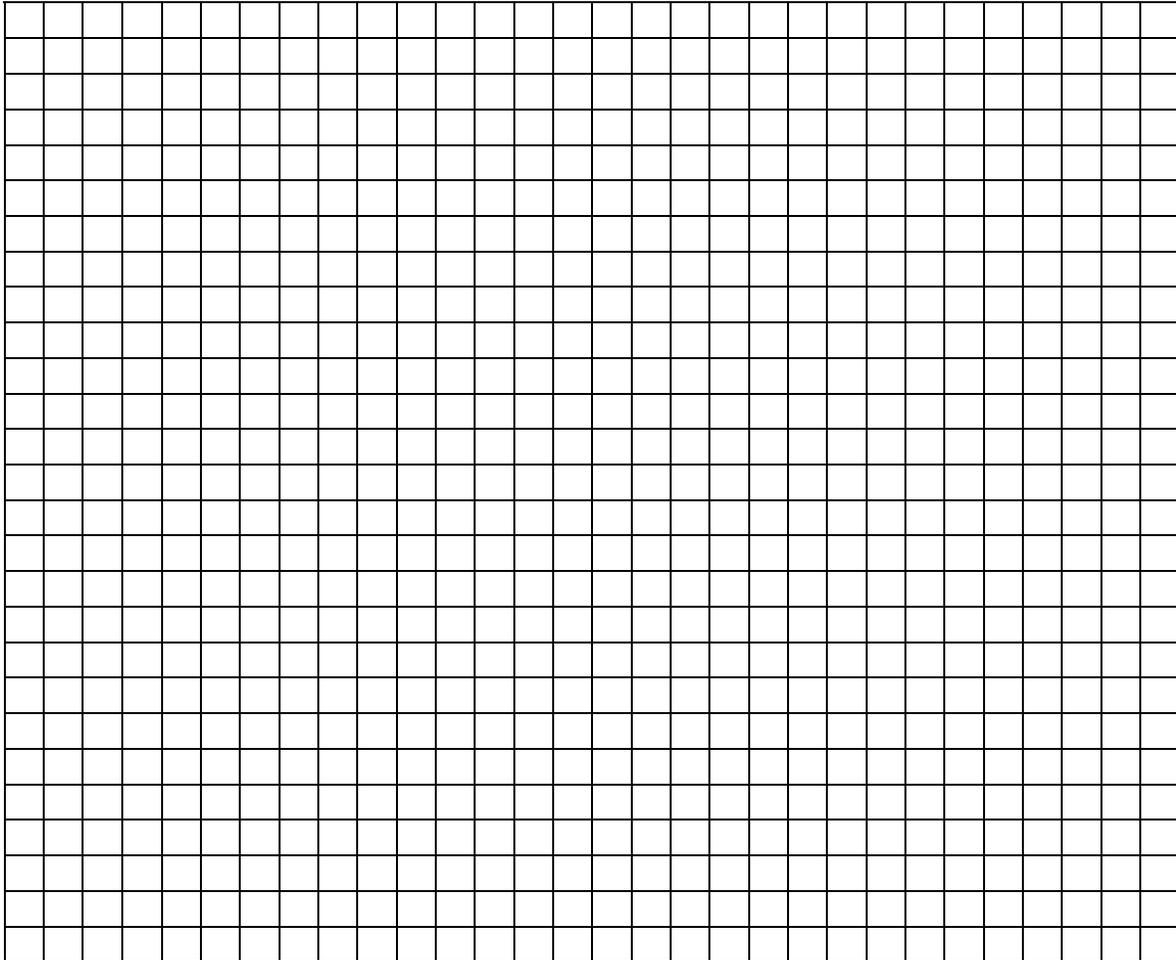
Problem 2: What is the effect of amplitude (or release angle) of a pendulum on its period? Note: Pendulums behave differently when the release angle becomes "large." Keep release angles below 20 degrees from the vertical. (Even a very slight swing of a few degrees is fine.)

Problem 3: What is the effect of length of a pendulum on its period? On this part, take at least 5 readings, over a wide range of lengths (e.g., 10cm to 80cm).

4. Graph the variable that most affected the period versus the period. Remember to put the I.V. on the horizontal axis and the D.V. on the vertical axis.



5. You will probably find this is not a linear relationship. Using the procedure from Lab 2, find what kind of relationship it is (you need not find the "k").



Experiment 5: Post Lab Exploration

1. You are sledding and have your choice of 2 different slopes, both covered by well-packed snow. They have an identical drop of 7 meters vertically. However, one slope is steeper than the other. You notice the sled doesn't even need a nudge to start coasting.
 - a. What does the last sentence tell you about friction?
 - b. How will the times compare for reaching the bottom of each slope?
 - c. How will the speeds compare at the bottom of each slope?
 - d. Where do you have the most potential energy?
 - e. Where do you have the least potential energy?
 - f. Where do you have the most kinetic energy? (Kinetic energy is the energy of motion.)
 - g. Where do you have the least kinetic energy?

2. Pendulums were often used for clocks before the electronic age (a slowly falling weight was used to "power" the pendulum, i.e., counteract the small friction that would eventually bring it to a stop.) Why do you think the pendulum was chosen for precise clocks? How would you fine-tune the accuracy of such a clock?