

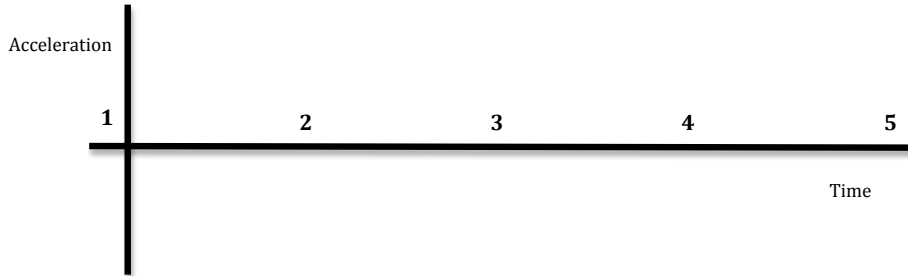
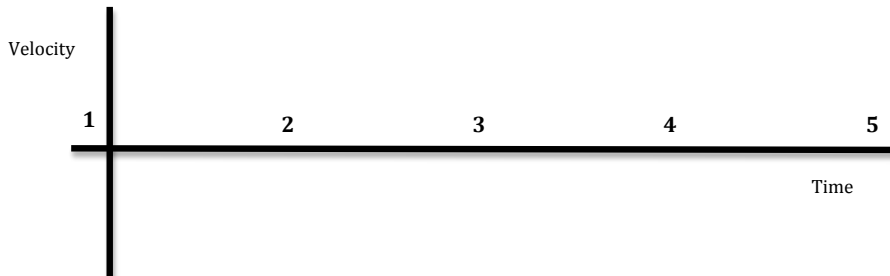
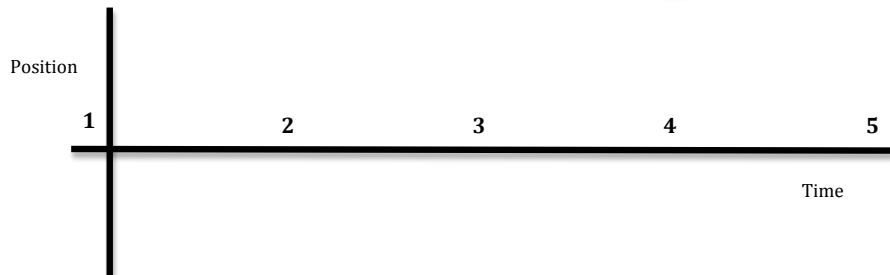
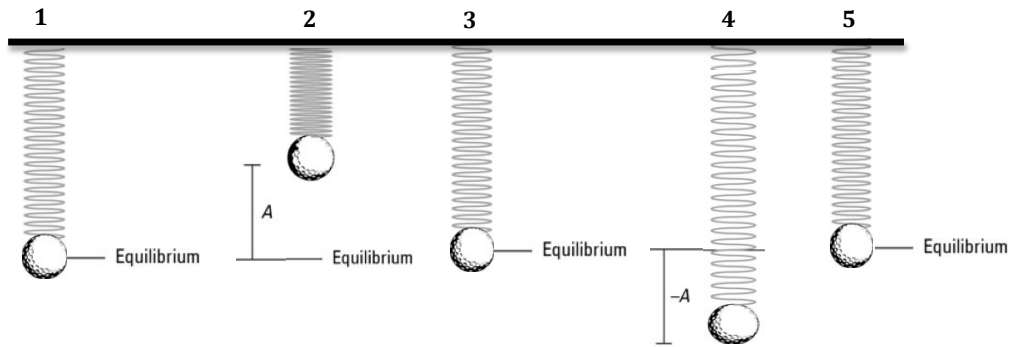
Name: \_\_\_\_\_

Class Period: \_\_\_\_\_

**Honors Physics: SHM**  
**Hooke's Law HW**

**Conceptual Questions:**

1. Using the image below of a spring going through SHM, create the position, velocity, and force/acceleration vs. time graph. Assume that the spring is already in motion and that the vertical upward direction is considered positive while the vertical downward direction is considered negative.



2. Consider the graph from question 1. Is the acceleration constant? Why does it change or not change?

3. A spring goes through 7.8 cycles in 5.85 seconds. Determine the period and frequency of this motion.
4. Preparing to shoot an arrow, an archer pulls back on the bowstring 0.40 m using a force that increases from 0 N to 230 N. What is the effective spring constant of the bow?



5. A sling-shot consists of a light leather cup attached to **two** rubber bands. If it takes a force of 32.0 N to stretch the bands 1.20 cm, what is the spring constant of either rubber band?
6. The CN Tower in Toronto, Canada, is 533 m tall (the world's tallest free-standing structure). Suppose an unusually long bungee cord is attached to the top of the CN Tower. The equilibrium length of the cord is equal to one-third the height of the tower. When a test mass of 70.0 kg is attached, the cord stretches to a length that equals two-thirds of the tower's height. From this information, determine the spring constant of the bungee cord.