## SHM Dynamics WS

1. At which point(s) in its cycle is the speed of a mass on a spring the greatest? At which point(s) is its speed zero?

2. At which point(s) in its cycle is the tangential (linear) acceleration of a pendulum the greatest? At which point(s) is its tangential acceleration zero?

3. In which direction is the pendulum bob accelerating when it is moving toward an endpoint?

4. In which direction is a mass on a spring accelerating when it is moving toward the equilibrium point?

5. Describe how the speed of a pendulum bob changes as it moves from one endpoint to the opposite endpoint.

6. A mass attached to a spring is moving in SHM and its speed is decreasing. What is happening to its acceleration during this interval?

7. Using the graph axes below, draw a line representing the velocity of a pendulum bob during one cycle of SHM. At time t=0, the bob is at the equilibrium point.

    v

    |
    |_____
    | t
    |
    |
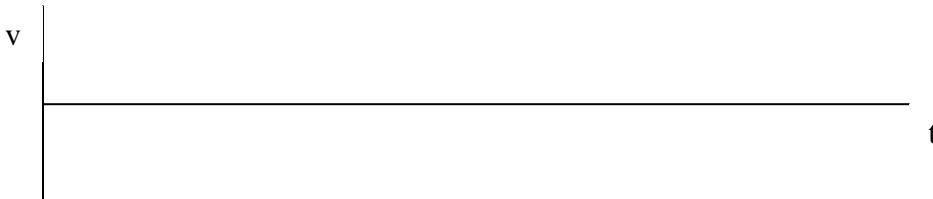
8. What force is directly responsible for the tangential (linear) acceleration of a pendulum bob? How can it cause different accelerations at different points if it is a constant-magnitude force?

9. Which force is directly responsible for the acceleration pattern of a mass oscillating at the end of a spring? Describe the characteristic of this force that produces the acceleration pattern experienced by the mass.