Name _____ Date _____ Class _____

**Lesson Outline** **LESSON 3**

# *Acceleration*

**A.** Acceleration—Changes in Velocity

**1.** _____ is a measure of the change in velocity during a period of time.

**2.** An object accelerates when its velocity changes as a result of increasing speed, decreasing speed, or a change of _____.

**3.** Like velocity, acceleration has a direction and can be represented by a(n) _____.

**4.** An acceleration arrow's direction depends on whether the _____ increases or decreases.

**a.** When the velocity of an object is increasing, the acceleration arrow points in the _____ direction as the velocity arrows.

**b.** When the velocity of an object is decreasing, the acceleration arrow points in the _____ direction as the velocity arrows.

**5.** When an object changes direction, the acceleration arrows point to the _____ of the curve along which the object is moving.

**B.** Calculating Acceleration

**1.** _____ is a change in velocity during a time interval divided by the time interval during which the velocity changes.

**2.** If SI units are used in the acceleration equation, then acceleration has units of _____.

**3.** If acceleration is negative, then it is _____ the direction of motion.

**C.** Speed-Time Graphs

**1.** A(n) _____ can be used to show how speed changes over time.

**2.** A speed-time graph has _____ plotted on the horizontal axis, which is the *x*-axis. _____ is plotted on the vertical axis, which is the *y*-axis.

**3.** The speed-time graph for an object at _____ is a horizontal line at $y = 0$.

## Lesson Outline continued

4. If an object is moving at _____ speed, its speed-time graph is a horizontal line above the *x*-axis.
5. The speed-time graph for an object that is speeding up is a line that slants _____ toward the right side of the graph.
6. If an object is slowing down, its speed-time graph is a line that slants _____ toward the right side of the graph.
7. Speed-time graphs do not show what happens when velocity changes as the result of a change of _____.

**D.** Summarizing Motion

1. _____ can be described by one's direction and distance from a reference point.
2. Distance and displacement can be compared to find one's average _____.
3. Speed and direction describe one's _____.
4. If one's velocity is _____, that person is accelerating.