**QUESTIONS TO HAND IN – EXPERIMENT 4**

**NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**LAB INSTRUCTOR\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_LAB DAY/TIME\_\_\_\_\_\_\_\_\_\_ \_ \_\_**

**1.** If a body is not moving at all, what would a plot of acceleration vs. time look like?

**2.** If a body is moving at a *constant velocity*, what would a plot of acceleration vs. time look like?

**3.** If a person's speed away from the detector smoothly changes from a value of 0 m/s to 5 m/s in an elapsed time of 3 s, what is the average acceleration?

**4.** If a person's speed toward the detector smoothly changes from a value of 0 m/s to 5 m/s in an elapsed time of 3 s, what is the average acceleration?

**5.** A person performs the following motions over a total span of 15 s: She starts from rest and moves away from the detector for 5 s, when she reaches a speed of 2 m/s. She then slows down to 0 m/s by the end of the next 5 s, and then heads back toward the detector increasing her speed to 1 m/s by the end of the next 5 s. What is the average acceleration over the:

(a) first 5 s interval? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) second 5 s interval? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(c) the third 5 s interval? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(d) the total 15 s interval? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_