# Quiz 1.5 – Rectilinear Motion

**1.** (1 point) —alfredLibrary/AUCI/chapter1/lesson5/quiz/question1p.pg—

**True or False:** Type 't' for True or 'f' for False. Notice that your number of attempts is limited.

Suppose an object is moving in rectilinear motion.

___ (a) The displacement and the total distance traveled are always equal.

___ (b) The velocity and the speed are always equal.

___ (c) If the velocity and acceleration have the same sign, then the object is speeding up.

___ (d) If the velocity and acceleration have different signs, then the object is slowing down.

___ (e) The velocity of the object at a given time is equal to the slope of the position curve at that time.

___ (f) The acceleration of the object at a given time is equal to the derivative of the velocity at that time.

**2.** (1 point) —alfredLibrary/AUCI/chapter1/lesson5/quiz/question3.pg—

*(Include **units** with your answers. Enter (without quotes) 'ft' for feet, 's' for seconds, and 's$^{2\prime}forsquareseconds.$)*

$Ifthepositionofanobjectisgivenbys(t) = -67t + 7$ *feet, then at* $t = 6$ *seconds,*

*(a) the velocity of the object is* ________,

*(b) the speed of the object is* ________, *and*

*(c) the acceleration of the object is* ________.

**3.** (1 point) —alfredLibrary/AUCI/chapter1/lesson5/ball39pet.pg—

*For this problem, upward will be considered the positive direction. The acceleration due to gravity is* $-9.81\ \frac{\mathrm{m}}{\mathrm{s}^2}$.

*(a) The general equation for the velocity of an object tossed upward is*

$$v(t) = \int \_\_\_ = \_\_\_\ m/s$$

*(b) If a ball is tossed upward with initial velocity* $34\ \frac{\mathrm{m}}{\mathrm{s}}$, *then we can find the unknown constant C. In this case, the velocity function is*

$v(t) =$ ___ *(Include **units**.)*

*(c) The net change in the ball's velocity from time* 1.5 s *to time* 3.25 s *is (include **units** in the last blank)*

$$v(\ \_\_\ )\ - v(\ \_\_\ ) = \_\_\int \_\_\ \_\_ = \_\_$$

*(d) To find the time at which the ball reaches its maximum height, we must solve the equation* ____ = 0. *Therefore, the maximum height occurs at* $t =$ ___ *(Include **units**.).*