

Class prep quiz on section 2.1, Stewart's Calculus (8th ed.)

1. Suppose we have an object travelling at constant speed  $s$ . Which of the following is *not* a correct relationship among  $s$ , distance travelled  $d$ , and time elapsed  $t$ ?  
(a)  $ds = t$  (b)  $s = d/t$  (c)  $d = st$  (d)  $t = d/s$
2. Suppose we know the position  $f(t)$  of some object at any time  $t$ , and we want to figure out its velocity at  $t = 2$ . Which of the following is the *best* description of why we can't compute the velocity of the object directly using rate equals distance over time?  
(a) We can't compute the object's velocity because it might not be constant.  
(b) If we only consider the instant  $t = 2$ , the distance travelled is 0.  
(c) If we only consider the instant  $t = 2$ , the time elapsed is 0.  
(d) Trick question: We *can* actually compute the velocity of the object directly using rate equals distance over time.
3. Consider the graph of a function  $y = g(x)$ . Which of the following is a correct interpretation of the expression  $\frac{g(5) - g(2)}{5 - 2}$ ?  
(a) The slope of the tangent line at  $x = 2$ .  
(b) The equation of the tangent line at  $x = 2$ .  
(c) The slope of the secant line between  $x = 2$  and  $x = 5$ .  
(d) The equation of the secant line between  $x = 2$  and  $x = 5$ .
4. Suppose the position of an object at time  $t$  seconds is  $s(t) = 500 - 16t^2$  feet above ground. What is the average velocity of the object between  $t = 3$  and  $t = 3.2$  seconds?  
(a)  $-96$  ft/sec (b)  $-99.2$  ft/sec (c)  $19.84$  ft/sec (d)  $99.2$  ft/sec