Class prep quiz on section 2.7, Stewart's Calculus (8th ed.)

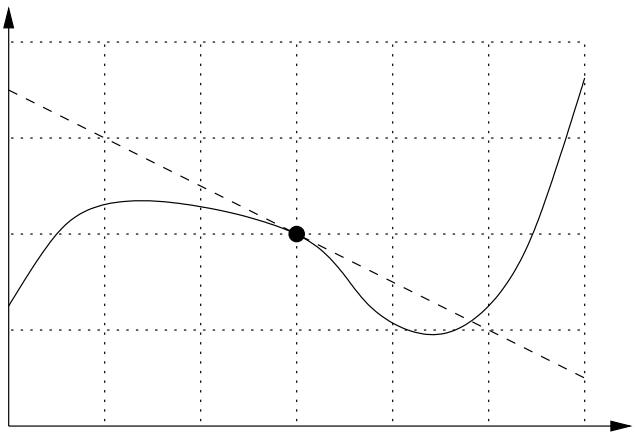
1. Let $f(x) = x^2$. Which of the following is the **definition** of $f'(-3)$?

   (a) -6 (b) $\dfrac{(-3+h)^2 - (-3)^2}{h}$

   (c) $2x$ (d) $\lim\limits_{h \to 0} \dfrac{(-3+h)^2 - (-3)^2}{h}$

2. Suppose an object moves along a straight line and its position at time t is $g(t)$. Which of the following is **not** a valid interpretation of $g'(7)$?

   (a) $g'(7)$ is the tangent line to $y = g(t)$ at $t = 7$.
   (b) $g'(7)$ is the instantaneous rate of change of $g(t)$ at $t = 7$.
   (c) $g'(7)$ is the instantaneous velocity of the object at $t = 7$.
   (d) $g'(7)$ is the slope of the tangent line to $y = g(t)$ at $t = 7$.



3. Suppose $f(x)$ is a function whose graph is shown above (solid curve), and suppose the tangent line of f at $x = 3$ is the dashed line shown above. What is the value of $f'(3)$?

   (a) -2 (b) $f'(3)$ cannot be determined from the graph
   (c) 2 (d) $-1/2$

4. What is the equation of the tangent line to $y = x^2 - 5$ at the point $(7, 44)$?

   (a) $(y - 44) = (2x)(x - 7)$ (b) $(y - 7) = (2x)(x - 44)$
   (c) $(y - 44) = 14(x - 7)$ (d) $(y - 7) = 14(x - 44)$