Ida the Idealized Bicyclist is moving along a straight road with position function

$$f(t) = 6t + 4 \quad \text{meters at time } t \text{ seconds}$$

1a. Compute the following: $f(0)$, $f(10)$, $f(t+4)$, and $f(t+\Delta t)$.

b. Explain in words what the value you got for $f(10)$ means in terms of Ida the bicyclist.

c. And explain what the expression that you got for $f(t+4)$ means.

2a. Compute the net change in f over the interval $[2, 10]$, and the average rate of change in f over the same interval. Give the appropriate units for both answers.
b. Repeat all of part (a) using the interval $[0, 20]$.

3. Draw the graph of the function $f(t)$ – that is, draw Ida's "Position vs Time" graph. Set up appropriate axes and label them with the variable names and units; make it something that somebody else could usefully read and get information from.

4. Let's call Ida's *velocity* function $v(t)$ (meters per second, at time t, measured in seconds). Now, **I haven't given you a formula for $v(t)$ yet**. Can you reason out what function this must be?
a. $v(t) =$ _____
b. Explain your reasoning briefly.

5. Draw the graph of $v(t)$ – that is, draw Ida's "Velocity vs. Time" graph.

6. True/False: (f and v are the same functions from the problems above.)

_____ a. The average rate of change in f is the same over every possible time interval.

_____ b. The net change in f is the same over every possible time interval.

_____ c. The average rate of change in v is the same over every possible time interval.

_____ d. v is increasing over every interval.

_____ e. f is increasing over every interval