AP Calculus Exam Prep Assignment #6 page 2 KEY

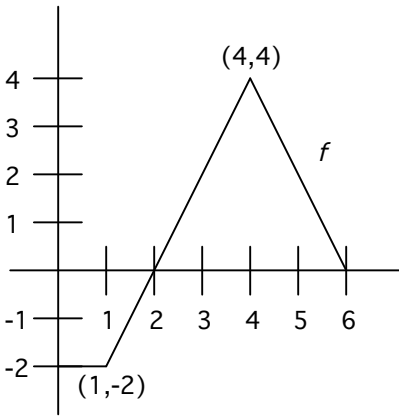
7) Suppose f is continuous on $1 \le x \le 2$, that $f'(x)$ exists on $1 < x < 2$, that $f(1) = 3$, and that $f(2) = 0$. Which of the following is <u>not</u> necessarily true?

C) There exists a number c in [1,2] such that $f'(c) = 3$

8) If $G(2) = 5$ and $G'(x) = \dfrac{10x}{9 - x^2}$ then an estimate of $G(2.2)$ using local linearization is approximately:

C) 5.8 $y = 4x - 3$ is the equation of the tangent at (2,5)

9) Let $H(x) = \int_0^x f(t)\,dt$ where f is the function whose graph appears to the right. The local linearization of $H(x)$ near $x = 3$ is $H(x)$=



B) 2*x* - 4

10) $f(x) = \int_0^{x^2+2} \sqrt{1 + \cos t}\,dt$. Then $f'(t) =$

A) $2x\sqrt{1 + \cos(x^2 + 2)}$

11) $\int_0^6 f(x-1)\,dx =$

E) $\int_1^7 f(x)\,dx$

12) The number c satisfying the Mean Value Theorem for $f(x) = \sin x$ on [1,1.5] is:

$f'(c) = \dfrac{\sin 1.5 - \sin 1}{1.5 - 1} \approx 0.3120 \quad \cos c \approx 0.3120 \Rightarrow c \approx \cos^{-1}(0.3120) = 1.253$ **D)**

13) The only function that doesn't satisfy the Mean Value Theorem on the interval specified is:

D) $f(x) = x + \dfrac{1}{x}$ on [-1,1]