Let's begin our Chapter Five Review!!!

A practice multiple-choice ***[non-calculator]***

$$\int_1^e \left(\frac{x^2-1}{x}\right)dx =$$

Hey! Quit brushing your hair and simplify

(A) $e-\frac{1}{e}$ (B) e^2-e (C) $\frac{e^2}{2}-e+\frac{1}{2}$ (D) e^2-2 (E) $\frac{e^2}{2}-\frac{3}{2}$

$$\int_1^e \left[x-\frac{1}{x}\right]dx = \frac{x^2}{2}-\ln x\Big|_1^e$$

$$= \left(\frac{e^2}{2}-1\right)-\left(\frac{1}{2}-0\right)$$

Another practice multiple-choice ***[non-calculator]***

. If $f(x)=\begin{cases}\ln x & \text{for } 0<x\le 2\\ x^2\ln 2 & \text{for } 2<x\le 4,\end{cases}$ then $\lim_{x\to 2} f(x)$ is

(A) $\ln 2$ (B) $\ln 8$ (C) $\ln 16$ (D) 4 (E) nonexistent

$\lim_{x\to 2^-} f(x) = \ln 2$

$\lim_{x\to 2^+} f(x) = 4\ln 2$

ACK! A JUMP DISCONT.

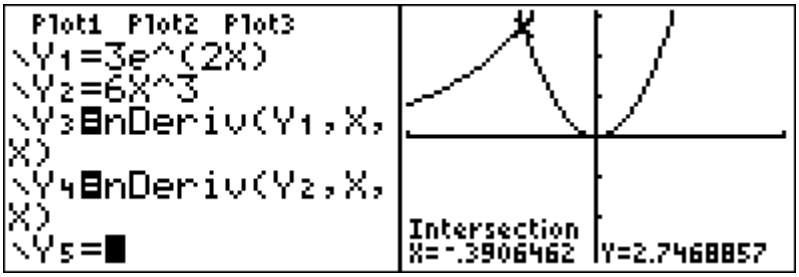
Some more practice multiple-choice ***[Calculator-friendly]***

Let f be the function given by $f(x)=3e^{2x}$ and let g be the function given by $g(x)=6x^3$. At what value of x do the graphs of f and g have parallel tangent lines?

$f'(c)=g'(c)$

(A) -0.701
(B) -0.567
(C) -0.391
(D) -0.302
(E) -0.258

See next page for our TI stuff



$\lim_{h\to 0}\dfrac{\ln(e+h)-1}{h}$ is

(A) $f'(e)$, where $f(x)=\ln x$

(B) $f'(e)$, where $f(x)=\dfrac{\ln x}{x}$

(C) $f'(1)$, where $f(x)=\ln x$

(D) $f'(1)$, where $f(x)=\ln(x+e)$

(E) $f'(0)$, where $f(x)=\ln x$

$\dfrac{d}{dx}\ln x\Big|_{x=e}$

$\lim_{h\to 0}\dfrac{f(a+h)-f(a)}{h} = f'(a)$

NOW WORK ON YOUR CHAPTER FIVE PROJECT WHICH IS DUE ON TUESDAY, FEBRUARY 16