Take the exam early.

E-mail Renley if you need to reschedule it.

Same day, 7:30, room TB4.

Exam time (by pre-approving only):

Room TBA.

Exam is Tues., 9/27, at 6:00 pm.

1/13

11/1/06
Sketch the graph of $f$. Given the graph of $f$, you should be able to find $f(x)$.
Define \( f'(a) \) as the derivative of \( f \) at \( a \).

Alternative version of \( \lim \limits_{h \to 0} \) (any graph, slope at \( x = a \), equation of \( f \).

\[
\frac{f(a+h) - f(a)}{h} = f'(a)
\]

Recall: \( f'(a) \) denotes \( \lim \limits_{h \to 0} \frac{f(a+h) - f(a)}{h} \).
The limit is 

$\lim_{x \to 0} \frac{f(x)}{x} = c$ (constant),

where $f(0) = 0$. Then using

dear others a lot easier than using
are rules that make finding

As you know (perhaps), have

$2.2$
\[\frac{dx}{dx} (m+x+b) = m\]

\[\frac{dx}{dx} (g+xw) = \frac{dx}{dx} (g+xw)\]

\[\frac{dx}{dx} (cfx) = cf(x)\]

\[\frac{dx}{dx} (m+x+b) = m\]

\[\frac{dx}{dx} (g+xw) = \frac{dx}{dx} (g+xw)\]

\[\text{If } f(x) = m \text{ then } \int f(x) = m\]

\[\int f(x) = \frac{3x^2}{3} + \frac{4x}{4} + \frac{1}{1}\]

\[\int f(x) = \frac{3x^2}{3} + \frac{4x}{4} + \frac{1}{1}\]
\[
\begin{align*}
\frac{d}{dx}\left(x^n\right) &= nx^{n-1} \\
\frac{d}{dx}\left(x^{-\frac{1}{2}}\right) &= -\frac{1}{2}x^{-\frac{3}{2}} \\
\frac{d}{dx}\left(x^\frac{1}{3}\right) &= \frac{1}{3}x^{-\frac{2}{3}} \\
\frac{d}{dx}\left(\sqrt{x}\right) &= \frac{1}{2\sqrt{x}} \\
\end{align*}
\]
my aun: \[ \frac{d}{dx} \left( \frac{3x^2 - 4x + 6}{x^2 + 10x} \right) = \frac{3x^2 - 4x + 6}{x^2 + 10x} \]

\[ = 3x^2 - 4 + 0 \]

2.3 (5) Differentiate: \[ f(x) = x^3 - 4x + 6 \]

\[ \frac{df}{dx} = 3x^2 - 4 \]
\[ \frac{x}{\frac{1}{5} + \frac{2}{3x^2} - \frac{2}{15x^4}} = \frac{\frac{\sum\frac{xP}{P} (x)}{\frac{10}{P} \frac{10}{P} (x^3) + \frac{\sum\frac{xP}{P} (x)}{\frac{1}{P} (x^3)} - \frac{\sum\frac{xP}{P} (x)}{\frac{1}{P} (x^3)}}}{\frac{\sum\frac{xP}{P} (x)}{\frac{1}{P} (x^3)}} \]
\[ \frac{d}{dx} (\sin(x)) = \cos(x) \]

\[ f' = \cos(x) \]

\[ \log(\sin(x)) = \sin(x) \]
\[ \frac{d}{dx} (\cos(x)) = -\sin(x) \]

\[ f' = -\sin(x) \]

\[ f(x) = \cos(x) \]
Quotient Rule:

\[
\frac{g(x)}{f(x)} \rightarrow \frac{g'(x) \cdot f(x) - g(x) \cdot f'(x)}{(f(x))^2} = \frac{g(x) \cdot f'(x) - f(x) \cdot g'(x)}{(f(x))^2}
\]

What is \( \frac{d}{dx} \)?
\[
\frac{d}{dx} (f(x)g(x)) = f(x)g'(x) + g(x)f'(x)
\]

Product Rule

Also:

\[
\frac{d}{dx} (f(x)g(x)) = \frac{d}{dx} (f(x)g(x))
\]