AP Calculus AB
Monday, April 15, 2013

Present two more problems
Questions on slope fields?
Finish diagnostic/go over diagnostic

You are in here for ETEH all week, starting tomorrow (today, if you want)

[redacted]

7. Given $f(x) = 10 - \frac{16}{x}$, find all c in the interval [-2, 8] that satisfies the Mean Value Theorem.

a. 4   b. 5   c. $\frac{8}{5}$ d. ± 4 e. none of these

$f(8) = 8 = 10 - \frac{16}{8} = 10 - 2 = 8$

$f(2) = 2$

$m = f'(c) = \frac{8-2}{8-2} = 1$

$f(x) = 10 - 16x^{-1}$

$f'(x) = 16x^{-2}$

$1 = 16c^{-2}$

$\frac{1}{16} = \frac{1}{c^2}$ $\quad c^2 = 16$

$c = \cancel{-4}, 4$

8. Given $f(x) = \frac{-6}{x}$, choose the correct statement.

a. The graph of f is concave upward on the interval $(-\infty, 0)$.

b. The graph of f is concave downward on the interval $(-\infty, 0)$.

c. The graph of f is concave upward on the interval $(-\infty, \infty)$.

d. The graph of f is concave upward on the interval $(0, \infty)$.

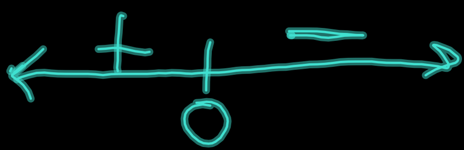
e. None of these

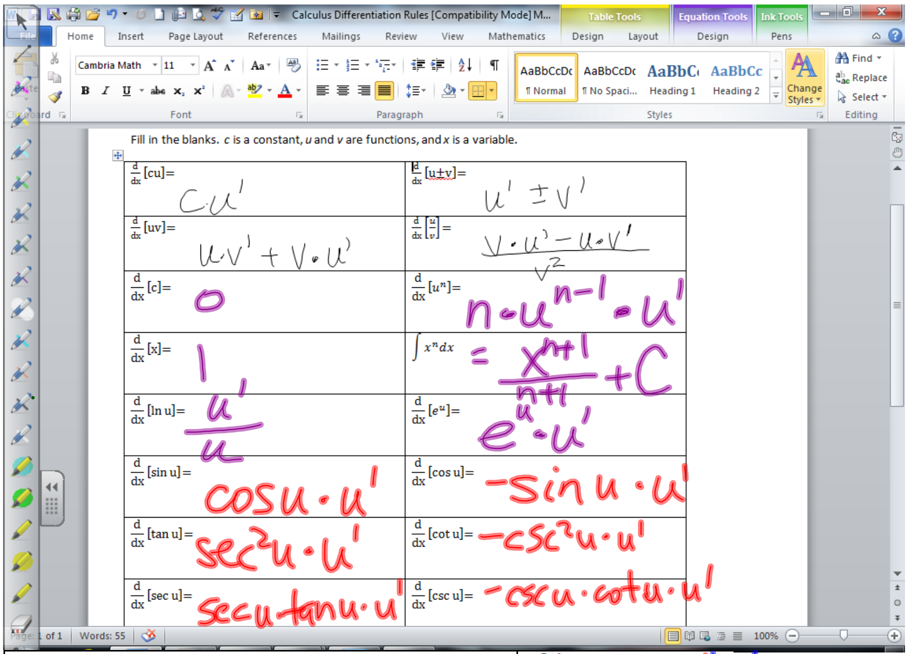
$$f(x) = -6x^{-1}$$

$$f'(x) = 6x^{-2}$$

$$f''(x) = -12x^{-3}$$

$$f''(x) = \frac{-12}{x^3}$$





Fill in the blanks. *c* is a constant, *u* and *v* are functions, and *x* is a variable.

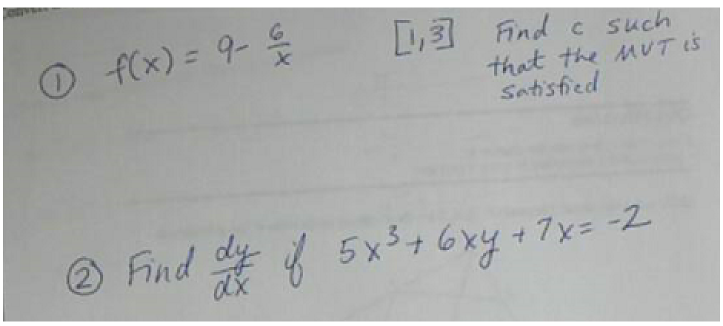
$\frac{d}{dx}[cu] = c\cdot u'$	$\frac{d}{dx}[u \pm v] = u' \pm v'$
$\frac{d}{dx}[uv] = u\cdot v' + v\cdot u'$	$\frac{d}{dx}\left[\frac{u}{v}\right] = \frac{v\cdot u' - u\cdot v'}{v^2}$
$\frac{d}{dx}[c] = 0$	$\frac{d}{dx}[u^n] = n\cdot u^{n-1}\cdot u'$
$\frac{d}{dx}[x] = 1$	$\int x^n dx = \frac{x^{n+1}}{n+1} + C$
$\frac{d}{dx}[\ln u] = \frac{u'}{u}$	$\frac{d}{dx}[e^u] = e^u\cdot u'$
$\frac{d}{dx}[\sin u] = \cos u\cdot u'$	$\frac{d}{dx}[\cos u] = -\sin u\cdot u'$
$\frac{d}{dx}[\tan u] = \sec^2 u\cdot u'$	$\frac{d}{dx}[\cot u] = -\csc^2 u\cdot u'$
$\frac{d}{dx}[\sec u] = \sec u\tan u\cdot u'$	$\frac{d}{dx}[\csc u] = -\csc u\cdot\cot u\cdot u'$

$\frac{d}{dx}[\arcsin u] = \frac{u'}{\sqrt{1-u^2}}$	$\int \frac{1}{x}dx = \ln\lvert x\rvert + C$
$\frac{d}{dx}[\arctan u] = \frac{u'}{1+u^2}$	$\int \frac{1}{x^2+a^2}dx = \frac{1}{a}\arctan\frac{x}{a} + C$
$\int \frac{1}{\sqrt{1-x^2}}dx = \arcsin x + C$	~~$\frac{d}{dx}[\operatorname{arcsec} u] =$~~

$$\frac{d}{dx}[\ln x] = \frac{1}{x}$$

quizlet.com

http://quizlet.com/18347773/ap-calculus-flash-cards-flash-cards/



① $f(x) = 9 - \frac{6}{x}$ $[1,3]$ Find c such that the MVT is satisfied

② Find $\frac{dy}{dx}$ if $5x^3 + 6xy + 7x = -2$