AP Calculus AB

Thursday, April 11, 2013

Present two multiple choice review problems

Volume of Solids

MMM #34

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3. Find all open intervals on which $f(x)=\frac{x}{x^2+x-2}$ is decreasing.

(x+2)(x-1)

x ≠ -2, 1

a. $(-\infty,\infty)$ b. $(-\infty,0)$ c. $(-\infty,-2)\cup(1,\infty)$ d. $(-\infty,-2)\cup(-2,1)\cup(1,\infty)$ e. none of these

Find f'(x) and determine where f'(x) is negative.

$$f'(x)=\frac{(x^2+x-2)(1)-x(2x+1)}{(x^2+x-2)^2}$$

$$f'(x)=\frac{x^2+x-2-2x^2-x}{(x^2+x-2)^2}$$

$$f'(x)=\frac{-x^2-2}{(x^2+x-2)^2}$$ } The denom > 0

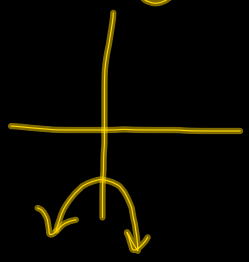
$-x^2-2=0$?

$-x^2=2$

$x^2=-2$ never

Think $y=-x^2-2$

$-x^2-2$ is always neg.



f'(x) is always negative on its domain

4. Find all critical values for $f(x) = (9 - x^2)^{3/5}$

a. 0 b. 3 c. -3, 3 d. -3, 0 ,3 e. none of these

$f(x) = (9-x^2)^{\frac{3}{5}}$

$f'(x) = \frac{3}{5}(9-x^2)^{-2/5} \cdot -2x$

$f'(x) = \frac{-6x}{5(9-x^2)^{2/5}}$

$-6x = 0$

$x = 0$

$5(9-x^2)^{2/5} = 0$

$-x^2 = -9$

$x = \pm 3$

1. Find the volume if the region enclosing $y = 4 - x, x = 0, y = 0$ is rotated about the

$y = 4 - x$

$x = 0$

$y = 0$

(a) x-axis

(b) line $x = 5$

Don't evaluate integrals!

$$f(x) = \frac{x-3}{x^2-5x+6} \rightarrow \frac{1}{x-2}$$

$$x^2-5x+6$$
$$(x-3)(x-2)$$

RD @ $x=3$

VA @ $x=2$

HA @ $y=0$

$$\sin(3(x+h)) \neq \sin 3x + \sin 3h$$

Is $\sin 90^\circ = \sin 30^\circ + \sin 60^\circ$? No

Deriv of $f(x) = \sin(3x)$

$$= \lim_{h \to 0} \frac{\sin 3(x+h) - \sin 3x}{h}$$

$$f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$$

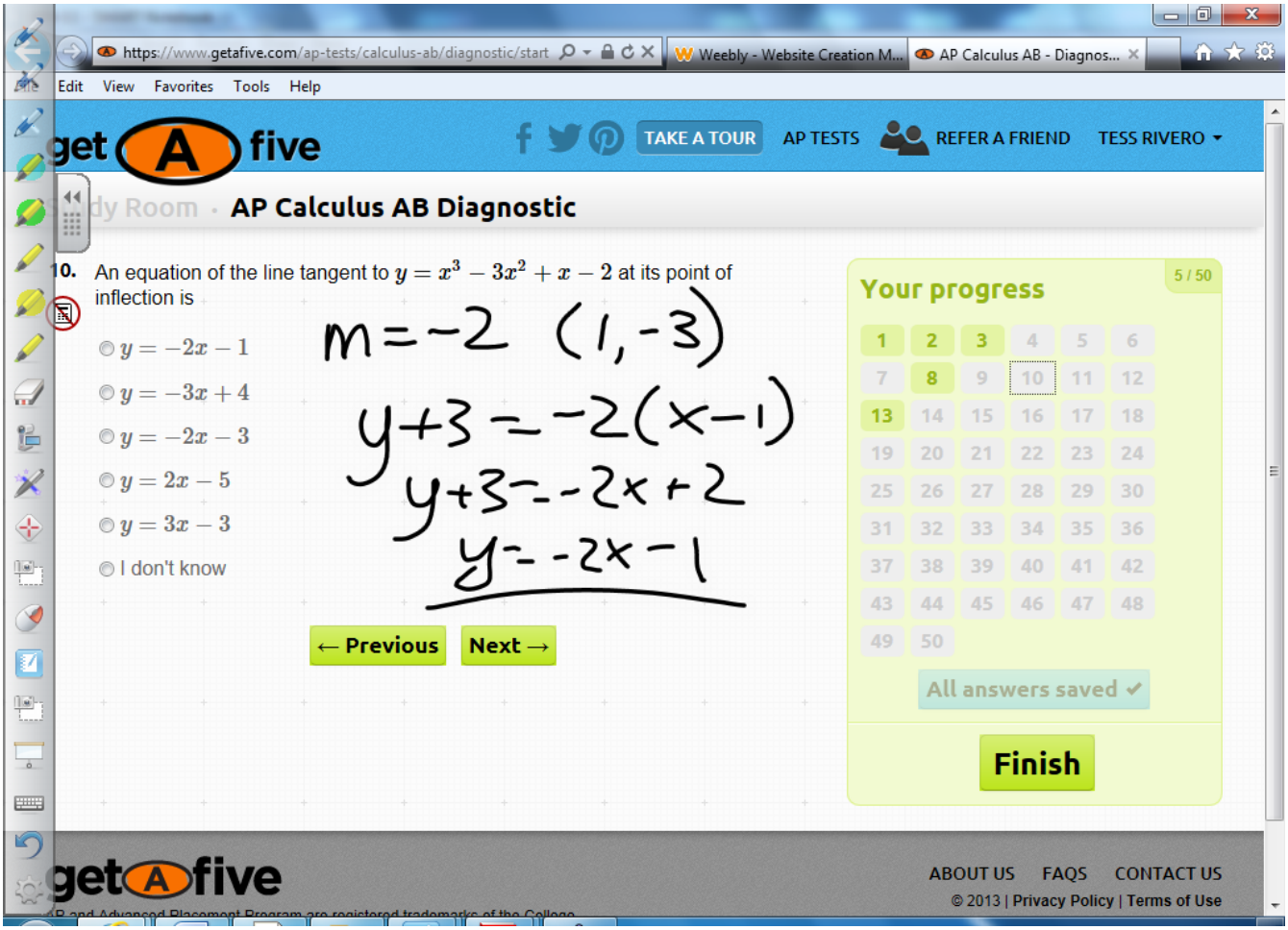
2. $\lim_{x \to 3} \dfrac{\sqrt{x+4} - \sqrt{7}}{x-3} =$

$\left(\dfrac{\sqrt{x+4}+\sqrt{7}}{\sqrt{x+4}+\sqrt{7}}\right)$

Plug in $1^{st} \rightarrow \frac{0}{0} \rightarrow$ L'Hopital's Rule

$$\lim_{x \to 3} \frac{\frac{1}{2}(x+4)^{-1/2}}{1} = \frac{1}{2\sqrt{7}}$$

$\frac{1}{2} \cdot \frac{1}{\sqrt{7}}$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10. An equation of the line tangent to $y = x^3 - 3x^2 + x - 2$ at its point of inflection is
$y = -2x - 1$
$y = -3x + 4$
$y = -2x - 3$
$y = 2x - 5$
$y = 3x - 3$
I don't know
m=-2 (1,-3)
y+3=-2(x-1)
y+3=-2x+2
y=-2x-1
← Previous
Next →
Your progress
5 / 50
1 2 3 4 5 6
7 8 9 10 11 12
13 14 15 16 17 18
19 20 21 22 23 24
25 26 27 28 29 30
31 32 33 34 35 36
37 38 39 40 41 42
43 44 45 46 47 48
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