

Quiz ONE, MTH 102, Spring 2010 at 2pm

Ayman Badawi

QUESTION 1. (i) Find $\lim_{x \rightarrow 1} \frac{x^2 - 2x + 1}{1 - x}$

(ii) Find $\lim_{x \rightarrow 4^+} \frac{x^2 - 15}{\sqrt{x + 5} + 2}$

(iii) Find $\lim_{x \rightarrow 3^-} \frac{3 - 2x}{x(x - 3)}$

(iv) Find $\lim_{x \rightarrow 5} \frac{x^3 - 5x^2}{\sqrt{x - 1} - 2}$

QUESTION 2. (use the back): Find all horizontal lines and vertical line for $f(x) = \frac{5x^2 + 10x}{x^2 + 3x + 2}$

Faculty information

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Quiz TWO, MTH 102, Spring 2010 at 2pm

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QUESTION 1. (i) Write $y = f(x) = |-4x + 12|$ as a piece-wise function.

(ii) find $\mathit{Lim}_{x \rightarrow 3^+} \frac{|-4x+12|}{x^2-9}$

(iii) Find $\mathit{Lim}_{x \rightarrow 5} \frac{|-4x+12|}{x+4}$

(iv) Find $\mathit{Lim}_{x \rightarrow 5^-} \frac{|-4x+12|}{x-5}$

QUESTION 2. (use the back): Use the concepts of limits, horizontal and vertical asymptotes to do a rough graph of

$$y = f(x) = \frac{4x^2 + x + 10}{x^2 - x - 2}$$

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Quiz Three, MTH 102, Spring 2010 at 2pm

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QUESTION 1. Let $f(x) = \sqrt{x+7}$. Find $f'(2)$ by definition.**QUESTION 2.** Find f' but do not SIMPLIFY:

(i) $f(x) = \frac{3}{x^2} + \sqrt[3]{x^2} + 10$

(ii) $f(x) = x^4 + 6x^{-4} - 7x + 1$

(iii) $f(x) = x^2(1+x)^2$

(iv) $f(x) = \frac{4}{\sqrt{x}} + \frac{2}{3x^3} - 7$, after you get $f'(x)$ find $f'(1)$.

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Quiz Five, MTH 102, Spring 2010 at 2pm

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QUESTION 1. Find $f'(x)$ and DO NOT SIMPLIFY:

(i) $f(x) = \sqrt[4]{(2x+1)(4x^2+3x-1)^3}$

(ii) $f(x) = \frac{5x^2+3x-1}{-2x+10}$

QUESTION 2. Let $P(x) = \sqrt{5x+1} + \frac{36}{5x+1}$ be a profit function.a. Find the equation of the tangent line to the curve of $P(x)$ at $(7, P(7))$.

b. Find the profit on 12 items.

c. Use (a) to approximate the profit on 12 items.

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Quiz Six, MTH 102, Spring 2010 at 2pm

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QUESTION 1. Find $f'(x)$ but do not simplify:

(i) $f(x) = \ln[(2x + 7)^4(-x^2 + 7x + 1)]$

(ii) $f(x) = 5\log(7x + 6) - 3(10^{2x+7}) - 3x^2 + 10$

(iii) $f(x) = 6(3x + 5e^{x^2+x})^{10}$

(iv) $f(x) = 7\log\left[\frac{(8x+2)^6}{(7x-10)^8}\right]$

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Quiz Seven, MTH 102, Spring 2010 at 2pm

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QUESTION 1. Let $f(x) = -x^3 + 12x + 10$ defined on $[0, 4]$. Find the absolute min. and the absolute max values of $f(x)$,

QUESTION 2. Sketch $f(x) = -2\ln(x) + x^2$ such that $x > 0$. Use first Derivative and Second Derivative in order to SKETCH $f(x)$

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Quiz Eight, MTH 102, Spring 2010 at 2pm

Ayman Badawi

QUESTION 1. Find y' do not simplify: $2x^3y^4 + 2x^2 + 3y^2 = 7$. Then evaluate y' at $(1, 1)$.

Find y' : $\ln(5x + 3y^2 - 4) + 3e^{2y} - 4e^{2x+1} - 3xy - 7y = 0$.

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Quiz Nine , MTH 102, Spring 2010 at 2pm

Ayman Badawi

QUESTION 1. Let $p = -0.2\sqrt{x} + 200$ be the price per item and $0 < p < 200$.

(i) Find $E(p)$.

(ii) Find $E(100)$ and explain the meaning of your answer.

(iii) For what values of p is the demand unit?

(iv) For what values of p is demand inelastic?

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Quiz Ten , MTH 102, Spring 2010 at 2pm

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QUESTION 1. Two types of calculators: A, B. Let x be number of calculators of type A in hundreds, and y be number of calculators of type B in hundreds. Given $R(x, y) = 10x + 15y$ and $C(x, y) = 5x^2 - 10xy + 10y^2 + 30x - 45y + 10$. How many calculators of each type should we sell in order to get maximum profit? What is the maximum profit?

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