

QUIZ 1
Calculus I, MA 125
Aug 31st 2004

Name: _____

Section: _____

1. (5 points) The monthly cost of driving a car depends upon the number of miles driven. Lynn found that in May it cost her \$300 to drive 400 mi and in June it cost her \$400 to drive 800 mi. Express the monthly cost C as a function of the distance driven d assuming that a linear relationship gives a suitable model.

2. (5 points) A rectangle has area 16 m^2 . Express the perimeter of the rectangle as a function of the length of one of its sides.

QUIZ 2
Calculus I, MA 125
Sept 7th 2004

Name: _____

Section: _____

1. (*4 points*) Let $f(x) = \sqrt{2x+1}$, $g(x) = x^2 + 1$. Find the following functions. Do not simplify your answers.

1. $f \circ g$

2. $g \circ f$

3. $f \circ f$

4. $g \circ g$

2. (*6 points*) Find a formula for the inverse of the function.

1. $f(x) = \sqrt{10 - 3x}$

2. $f(x) = e^{x^3}$

QUIZ 3
Calculus I, MA 125
Sept 21st 2004

Name: _____

Section: _____

1. (4 points) Evaluate the following limits.

1. $\lim_{x \rightarrow 4} (5x^2 - 2x + 3)$

2. $\lim_{x \rightarrow 1} \left(\frac{1 + 3x}{1 + 4x^2 + 3x^4} \right)^3$ (Do not simplify your answer)

2. (6 points) For the function g whose graph is given, state the value of the given quantity, if it exists. If it does not exist, explain why.

The graph of g is the same as on Section 2.2, Problem 5 on page 109 in the text book. From the graph we can state:

1. $\lim_{t \rightarrow 0^-} g(t)$

2. $\lim_{t \rightarrow 0^+} g(t)$

3. $\lim_{t \rightarrow 0} g(t)$

4. $\lim_{t \rightarrow 2^-} g(t)$

5. $\lim_{t \rightarrow 2^+} g(t)$

6. $\lim_{t \rightarrow 2} g(t)$

QUIZ 4
Calculus I, MA 125
Oct 5th 2004

Name: _____

Section: _____

1. (4 points) The number N (in thousands) of cellular phone subscribers in Malaysia is shown in the table.

Year	1993	1994	1995	1996	1997
N	300	570	870	1510	2460

1. Find average rate of growth from 1995 to 1997.

 2. Find average rate of growth from 1995 to 1996.

 3. Find average rate of growth from 1994 to 1995.

 4. Estimate the instantaneous rate of growth in 1995 by taking an average of the answers in 2 and 3.
- 2.** (4 points) If $f(x) = 3x^2 - 5x$ find $f'(a)$. Use it to find an equation of the tangent line to the parabola $y = 3x^2 - 5x$ at the point $(2, 2)$.

3. (2 points) The limit $\lim_{h \rightarrow 0} \frac{(1+h)^{10} - 1}{h}$ represents the derivative of some function f at some number a . Find f and a .

QUIZ 5
Calculus I, MA 125
Oct 12th 2004

Name: _____

Section: _____

1. (4 points) Find the derivative of $f(t) = \frac{4t}{t+1}$ using the definition of the derivative.

2. (3 points) Find the equation of the tangent line to the curve $y = x + \sqrt{x}$ at the point $(1, 2)$.

3. (3 points) For what values of x does the graph of $f(x) = 2x^3 - 3x^2 - 12x + 87$ have a horizontal tangent ?

QUIZ 6
Calculus I, MA 125
Oct 19th 2004

Name: _____

Section: _____

1. (4 points) Suppose that $f(5) = 1$, $f'(5) = 6$, $g(5) = -3$ and $g'(5) = 2$. Find the following values:

1. $(fg)'(5)$

2. $(f/g)'(5)$

2. (3 points) Find the equation of the tangent line to the curve $y = 2xe^x$ at the point $(0, 0)$.

3. (3 points) The position function of a particle is given by $s = t^3 - 4.5t^2 - 7t$, $t \geq 0$.

1. Find velocity and acceleration as functions of time.

2. When is the acceleration 0 ?

QUIZ 7
Calculus I, MA 125
Oct 26th 2004

Name: _____

Section: _____

1. (8 points) Differentiate the following:

1. $g(t) = t^3 \cos t$

2. $y = \frac{x}{\sin x + \cos x}$

3. $y = e^{\sqrt{x}}$

4. $g(t) = (6t^2 + 5)^3(t^3 - 7)^4$

2. (2 points) Find the equation of the tangent line to the curve $y = \sin(\sin x)$ at the point $(\pi, 0)$.

QUIZ 8
Calculus I, MA 125
Nov 2nd 2004

Name: _____

Section: _____

1. Find $\frac{dy}{dx}$.

1. (*2 points*) $y = \ln(\cos x)$

2. (*4 points*) $x^2y + xy^2 = 3x^2$ (Use Implicit Differentiation)

3. (*4 points*) $y = x^x$ (Use Logarithmic Differentiation)

QUIZ 9
Calculus I, MA 125
Nov 23th 2004

Name: _____

Section: _____

1. (5 points) Find the absolute and minimum values of $f(x) = x^2 + 2/x$ on the interval $[1/2, 2]$.

2. (5 points) Find the limits using L'Hospital's Rule.

1. $\lim_{x \rightarrow 0} \frac{e^x - 1}{\sin x}$

2. $\lim_{x \rightarrow 0^+} \sqrt{x} \ln x$

QUIZ 10
Calculus I, MA 125
Nov 30th 2004

Name: _____

Section: _____

1. (5 points) Find the dimensions of a rectangle with area $100 m^2$ whose perimeter is as small as possible.

2. (5 points) A ladder $10 ft$ long rests against a vertical wall. If the bottom of the ladder slides away from the wall at a rate of $1 ft/s$, how fast is the top of the ladder sliding down the wall when the bottom of the ladder is $6 ft$ from the wall ?