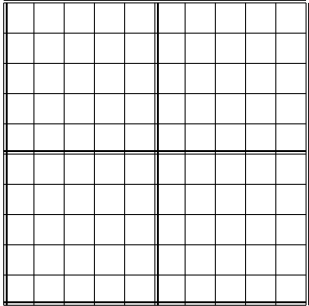


MATH 111 EXAM 2, Spring 2008

Simplify all answers. Show your work.		Name:	Score	
1.	a) Find the domain of the function: $f(x) = \sqrt{3-x}$ Ans: _____	b) Find the average rate of change of: $f(x) = 2x^2 - 1$ from 1 to 3. Ans: _____	1	
			2	
			3	
			4	
			5	
			6	
			7	
2.	Express the relation of the functions below in terms of shifts, stretching, compression and reflections a) $f(x) = x^2$, $g(x) = -3(x+2)^2$. Ans: _____	b) $f(x) = \sqrt{x}$, $g(x) = 2\sqrt{x+4} - 5$ Ans: _____	8	
			9	
			10	
			Tot	
3.	The revenue R of a company as a function of price p for the sale of cell phones is given by $R(p) = -150p^2 + 12000p$. a) What price results in maximum revenue? Ans: _____	b) What is the maximum revenue? Ans: _____		
4.	Let $f(x) = x^3 - 5x - 7$. Graph the function and find: a) The x-intercept (to three decimal places.) Ans: _____	b) The interval(s) where $f(x)$ is increasing. Ans: _____		
5.	Let $f(x) = \begin{cases} 2x - 1 & x \leq 1 \\ 4 - 3x & x > 1 \end{cases}$ a) Compute $f(-2)$ and $f(5)$. $f(-2)$: _____ $f(5)$: _____	b) Graph the function. 		
Extra Space				

6. This table shows the undergraduate enrollment y (in thousands) at a university over the last 9 years.

t	1	2	3	4	5	6	7	8	9
y	5.47	5.95	6.53	7.06	7.56	8.04	8.55	10.80	11.9

a) Find the regression line.

b) Predict the enrollment for next year.

Ans: _____.

Ans: _____.

7. Let $f(x) = \frac{x^2 - 4}{x - 1}$. Find: a) The zeros and vertical asymptotes. b) The oblique asymptotes. Sketch the graph.

a)

b)

Zeros: _____ Asym: _____.

Asym: _____.

8. Solve the inequalities.

a) $x(x - 2)(x + 4) < 0$:

b) $\frac{7}{(x - 3)} \leq -1$.

Ans: _____.

Ans: _____.

9. a) Find all the roots and their multiplicities.

$$3(x^2 + 1)^2(2x - 5)^3 = 0.$$

b) Find a polynomial with the roots at $x = 5$ and $x = 3i$. Write the answer in the form $a_3x^3 + a_2x^2 + a_1x + a_0$.

Ans: _____.

Ans: _____.

10. Let $f(x) = 3x^3 - 18x^2 + x - 6$.

a) Show that $x = 6$ is a root.

b) Use the factor theorem to find the other roots.

Ans: _____.

Ans: _____.

Extra Space (Comments about this test?)