

Math 110
Exam 2
February 22, 2007

Name: _____

1. Your exam contains 7 questions and 4 pages; Please make sure you have a complete exam.
2. The entire exam is worth 50 points. Point values for problems vary and these are clearly indicated. You have 50 minutes for this exam.
3. Make sure to ALWAYS SHOW YOUR WORK; you will not receive any partial credit unless all work is clearly shown. If in doubt, ask for clarification.
4. If you need extra space, use the back of the page and clearly indicate this.
5. You are allowed one 8.5×11 sheet of handwritten notes (both sides). Graphing and scientific calculators are allowed.

Problem	Total Points	Score
1	12	
2	6	
3	4	
4	6	
5	8	
6	4	
7	10	
Total	50	

1. (12 points) Let $f(x) = 2x^2$ and $g(x) = x - 4$. Find:

(a) $(f \circ g)(x)$

(b) $(f \circ g)(2)$

(c) $(fg)(x)$

2. (6 points) Let $f(x) = (x^3 - 2)^5$. Find the inverse function of f .

3. (4 points) Describe the end behavior of the polynomial $P(x) = 2x^5 + 3x^4 - x^2 - 2$. Explain your answer.

4. (6 points) Divide: $\frac{2x^4 + 3x^3 - 8x^2 - 7}{x^2 + 3x - 1}$

5. (8 points) Let $P(x) = 3x^4 + 5x^3 - 5x + 6$. Use synthetic division and the Remainder Theorem to find $P(-1)$.

6. (4 points) List all possible rational zeros given by the Rational Zeros Theorem for $P(x) = 2x^4 - x^3 + 7x - 8$.

7. (10 points) Sketch the graph of $r(x) = \frac{x^2 - 2x + 1}{x - 2}$. Be sure to show how you find all intercepts and asymptotes.