

**Math 99**  
**Exam 2**  
**May 16th, 2007**

Name: \_\_\_\_\_

1. Your exam contains 5 questions and 6 pages; Please make sure you have a complete exam.
2. The entire exam is worth 100 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 an extra sheet attached to the back of the exam and clearly indicate this.
5. You are allowed one  $8.5 \times 11$  sheet of handwritten notes (both sides).
6. Leave answers in exact form (as simplified as possible) or round to 4 decimal places.

Problem	Total Points	Score
1	15	
2	10	
3	20	
4	40	
6	15	
Total	100	

1. (15 pts.)  $f(x) = \frac{3}{2x-8}$

(a) (5 pts.) What is the domain of  $f$ ?

(b) (5 pts.) What is  $f(-1)$ ?

(c) (5 pts.) What is  $f(3-x)$ ? (Simplify your answer as much as possible.)

2. (10 pts.) Find the distance between the points  $(\sqrt{6}, 2)$  and  $(-\sqrt{6}, -1)$ .

3. (20 pts.) Solve the following equations.

(a) (10 pts.)  $2\sqrt[3]{3x+1} + 4 = 0$

(b) (10 pts.)  $\sqrt{5+t} = t + 3$

4. (40 pts.) Simplify the following as much as possible.

(a) (6 pts.)  $\sqrt{\frac{m^6}{81}}$

(b) (7 pts.)  $2a^{2/3}(a^{4/3} - 3a^{-5/3})$

(c) (6 pts.)  $\sqrt[4]{r^3} \cdot \sqrt[8]{r^3}$  (Leave your answer in exponential form.)

(d) (7 pts.)  $\sqrt[3]{16x^6y^{11}}$

(e) (7 pts.)  $4 - \sqrt{6} + 3\sqrt{54}$

(f) (7 pts.)  $\frac{\sqrt{27}}{2+\sqrt{3}}$  (Rationalize the denominator and simplify.)

5. (15 pts.) Graph  $g(x) = \sqrt{x+4}$  and state the domain and range of  $g$ .

