

Math 80
Final Exam
June 15, 2006

Name: _____

1. Your exam contains 6 questions and 8 pages; Please make sure you have a complete exam.
2. The entire exam is worth 115 points. Point values for problems vary and these are clearly indicated. You have 2 hours 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 of paper and clearly indicate this.
5. You are allowed two 8.5×11 sheet of handwritten notes (both sides). Graphing and scientific calculators are allowed.
6. Leave answers in exact form (as simplified as possible) or round to 4 decimal places.

Problem	Total Points	Score
1	30	
2	15	
3	15	
4	20	
5	15	
6	20	
Total	115	

1. (30 pts.)

(a) (5 pts.) Find all values for which $\frac{2}{x^2-x-20}$ is undefined.

(b) (5 pts.) Simplify the complex fraction $\frac{2+\frac{1}{x}}{\frac{6x+3}{x^2}}$.

(c) (5 pts.) $\frac{x^2+3x}{2x-2} \div \frac{x+3}{2(x+2)} =$

(d) (5 pts.) $\frac{2(x-5)^2}{x+1} \cdot \frac{x+1}{5-x} =$

(e) (5 pts.) $\frac{2}{x} + \frac{3}{x+4} =$

(f) (5 pts.) $\frac{2x}{x^2-6x+9} - \frac{2}{x-3} =$

2. (15 pts.) Farmer Bob has a small lettuce garden with an area of 48 square feet. The length of the garden is 3 times its width. What are the dimensions on the garden?

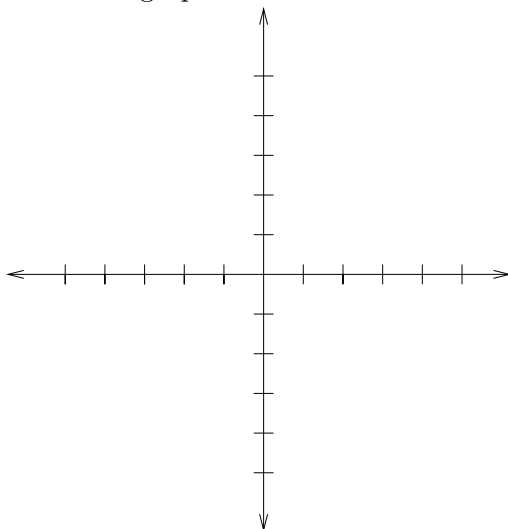
3. (15 pts.) Susie Q has \$3.35 in quarters and dimes in her piggy bank. There are a total of 20 coins. How many of each coin does she have?

4. (20 pts.)

(a) (10 pts.) Find an equation for the line through the points $(-3, 4)$ and $(1, \frac{8}{3})$. Write your answer in slope-intercept form.

(b) (5 pts.) Find an equation for a line through the point $(0, -2)$ that is perpendicular to the line in part *a*. Write your answer in slope-intercept form.

(c) (5 pts.) Graph the lines for the equations in part *a* and *b* on the axis below. Be sure to label each graph.



5. (15 pts.) Solve the following equations.

(a) (5 pts.) $2p + 5(p - 1) = 4p + 1$

(b) (5 pts.) $3r^2 = 8r - 5$

(c) (5 pts.) $4x^3 - 16x = 0$

6. (20 pts.) Carry out the following operations.

(a) (5 pts.) $(2x + 5) \cdot (3y - x + 2) =$

(b) (5 pts.) Simplify $\frac{(3a^2b^{-4})(2ab)}{(5a^3b)^{-1}}$. Write your answer with only positive exponents.

(c) (5 pts.) $\frac{3xy - 24x^2y + 9y^2}{3xy} =$

(d) (5 pts.) $\left(\frac{1}{9}\right) \cdot \left(\frac{2}{3}\right)^{-3} =$