MAT 111 Exam I Spring 2003 Name

Instructions

1. Do all of your work in this booklet. Do not tear off any sheets.
2. **SHOW ALL OF YOUR STEPS** in the problems.
3. Be **clear and neat** in your work. Any illegible work, or scribbling in the margins, will not be graded.
4. Place a **box** around your answers.
5. Place your name on all of the pages.
6. If you need more space, you may use the back of a page, and write **On back of page __** at the top of the page.

Problem	Score
1 (30pts)	
2 (14 pts)	
3 (16 pts)	
Total (60 pts)	

1. (30 pts) Solve the following for x.

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

b. Solve using the quadratric formula: $2x^2 - 3x - 1 = 0$

c. Solve by completing the square $x^2 - 6x - 2 = 0$

d. Solve using the Square Root Method: $(x-1)^2 - 16 = 0$.

e. $3 + \sqrt{3x+1} = x$.

f. $x^4 - 24x^2 + 80 = 0$

g. Solve, give the solution in interval notation and graph the solution set. $|x+2| \geq 7$.

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2. (14 pts) Use the points **P** = (2,1) and **Q** = (4,-3) in the following.

a. Find the distance between **P** and **Q**.

b. What is the midpoint between these two points?

c. What is the slope of the line through **P** and **Q**?

d. Find the equation of the line in slope-intercept form.

e. Find the equation of the line through **P** above which is parallel to the line $3x + 2y = 6$.

3. (16 pts) Do the following:

a. Find the radius and center of the circle
$x^2 + y^2 - 2x + 4y - 5 = 0$

b. Use your graphing calculator to get approximate solutions to $x^3 - 5x + 3 = 0$ to two decimal places.

c. A recent retiree has $70,000 to invest. He can invest in bonds at 8% per year or certificates at 5% per year. How much money should be invested in each so that the totla interest earned is $5000?

d. Write $-6 \le x < 4$ in interval notation.

e. Find the x and y intercepts for $x + 2y = 24$.

x-intercept _____

y-intercept _____