Instruction
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.

1. (30 pts) Solve the following for $x$.
   a. $-3(x + 1) = 3(x - 2) + 5$

   b. Solve using the quadratic 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. $|x + 2| \geq 7$
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 total interest earned is \$5000? 

d. Write \( -6 \leq x < 4 \) in interval notation.

e. Find the \( x \) and \( y \) intercepts for \( x + 2y = 24 \).

- \( x \)-intercept ________
- \( y \)-intercept ________