Exam # 1

> **Directions:** Carefully read each question below and answer to the best of your ability in the space provided. You **MUST** show your work to receive full credit!

1. (15 points) Find the center and radius of the circle with equation:

$$x^2 + 6x + y^2 - 4 = 0.$$

(*Hint:* Complete the square with x.)

2. (5 points) What is the 1st operation applied to x in the following expression

$$13 - (x - 4)^2.$$

   (a) Subtract it from 13
   (b) Multiply by -1
   (c) Raise it to the 2nd power
   (d) Take the square root
   (e) Subtract 4

3. (15 points) Solve for x in the equation

$$\sqrt{16x + 41} = x + 5.$$

4. (10 points) Find the x-intercepts and y-intercepts of the following equation:

$$y^2 - 4y - 21 = x.$$

5. (15 points) Solve for x:
$$x^6 - 14x^3 = -49.$$

6. (7 points) Give an equation of the line through $(4, 1)$ that is <u>parallel</u> to $4x + 2y - 2 = 0$.

7. (8 points) What is the center of the circle which has a diameter with endpoints at $(-7, -5)$ and $(2, -3)$?

8. (10 points) Find a solution to the following system of equations.

$$3x - 2y = 2$$
$$5x + y = 4$$

9. (15 points) Solve the system:

$$(x+3)^2 + y^2 = 8$$
$$x + y = -3$$

10. (10 points) BONUS: A student has exam scores of 92, 70, 52, and 78. What score does he need on the fifth exam to have an average of 78?

Name: _____

Question:	1	2	3	4	5	6	7	8	9	10	Total
Points:	15	5	15	10	15	7	8	10	15	10	110
Score:											