Math 190 Test 3
December 2, 2014

Name: _____

Note that both sides of each page may have printed material.

Instructions:

1. Read the instructions.

2. Don't panic! I repeat, do NOT panic!

3. Complete all problems. In this exam, each problem is worth 10 points.

4. Show ALL your work to receive full credit. You will get 0 credit for simply writing down the answers. Make sure your answers are fully simplified.

5. Write neatly so that I am able to follow your sequence of steps and box your answers.

6. Read through the exam and complete the problems that are easy (for you) first!

7. No scrap paper, calculators, notes or other outside aids allowed—including divine intervention, telepathy, knowledge osmosis, the smart kid that may be sitting beside you or that friend you might be thinking of texting. In fact, **cell phones should be out of sight!**

8. Use the correct notation and write what you mean! x^2 and $x2$ are not the same thing, for example, and I will grade accordingly.

9. Other than that, have fun and good luck!

May the odds be ever in your favor. *Muhuhahahahahahaahahaha!*

1. Find the midpoint of the line segment joining $(-1, 3)$ and $(5, 1)$.

2. Find the distance between the points $P(-1, 3)$ and $Q(5, 1)$.

3. Use Cramer's Rule to solve the following system for x. Do not solve for y or z. No credit will be given for any other method.
$$\begin{cases} x + y + z = 6 \\ -x - y + z = 0 \\ 2x + y - z = 1 \end{cases}$$

4. Solve the following system of equations:
$$\begin{cases} x + 2y = 5 \\ x^2 + y^2 = 25 \end{cases}$$

5. Find the center and radius of the circle whose equation is $12 - 3y^2 + 6x = 3x^2 - 12y$.

6. Find the equation of the circle with center $(-1, 2)$ that passes through the point $(1, 2)$.

7. Sketch the graph of the parabola $y = x^2 - 4x - 5$ by first finding and labeling the coordinates of its vertex and intercepts.

8. Solve the following quadratic equation: $2x^2 + 6x + 3 = 0$.

9. Find the equation of the circle which has $(-1, 3)$ and $(5, 1)$ as endpoints on its diameter. Hint: your answers to problems 1. and 2. may come in handy.

10. Find the vertex and all intercepts of the parabola $y = 3x - x^2$. Use that information to graph the parabola.