EXAM 4 - MATH 102

Friday, December 4

YOUR NAME:_____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 10 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Use the method of "completing the square" to solve the the quadratic equation

$$x^2 + 8x - 4 = 0.$$

2. Solve the rational equation

$$\frac{1}{x} - \frac{2}{1-x} = \frac{1}{2}.$$

3. Use substitution to solve the quadratic equation

$$(x^2 + 2x)^2 - 7(x^2 + 2x) + 12 = 0.$$

4. Find (a) the vertex; (b) the opening direction; (c) the y-intercept; (d) the x-intercepts and (e) graph the function $f(x) = -x^2 - 8x + 9$. (Please, number your answers with (a)-(e) and label all important points on the graph.)

5. Solve the quadratic inequality $(x+4)^2 > 10x+31$ using the sign table method and write your answer in interval notation.