HOMEWORK 2 - MATH 111
DUE DATE: Monday, January 24
INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 1 point. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Solve the linear inequality $x - (5 + 3x) + 3 < 2x + 7$ and graph the solution set.

2. Solve the linear inequality $-2 < 7x + 1 \leq 1$ and graph the solution set.

3. Solve the absolute value inequality $|3x + \frac{1}{4}| - 1 \geq 2$ and graph the solution set.

4. Use the sign table method to solve the polynomial inequality $x^2 - 2k - 15 \geq 0$ and graph the solution set.

5. Use the sign table method to solve the polynomial inequality $6x^2 - 11x + 3 < 0$ and graph the solution set.

6. Use the sign table method to solve the rational inequality $\frac{x^2+x-2}{x^2-2x-3} \leq 0$ and graph the solution set.

7. Solve the rational inequality $\frac{2}{x+5} \geq \frac{3}{x-2}$ and graph the solution set.

8. Find the domain of the function $f(x) = \sqrt{\frac{3x+1}{2x-7}}$.