PRACTICE EXAM 1 - MATH 111
DATE: Wednesday, September 22
INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 3 points. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. (a) Find the equation of the line that passes through the points $(-2, -1)$ and $(4, 3)$.

   (b) Find the equation of the line that is parallel to the line in (a) and passes through $(1, 5)$.

2. Suppose that the cost C in terms of the number of items x produced is given by $C = 125x + 42,000$ and the revenue R in terms of x is given by $R = 165x$. Find the break-even point and then evaluate the break-even revenue.

3. Solve the absolute value inequality $|3x - 4| < 2$ and graph its solution set.

4. Solve the rational inequality $\frac{x^2-9}{x} > 0$ and graph its solution set.

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

6. Roughly sketch the graph of the piece-wise defined function $f(x) = \begin{cases} -x + 1, & \text{if } x \leq -1 \\ -3x - 1, & \text{if } x > -1 \end{cases}$.