PRACTICE EXAM 1 - MATH 111
DATE: Friday, January 28
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. Find the the equation of the straight line that passes through the point $(-2, 3)$ and is perpendicular to the line passing through $(-1, -7)$ and $(3, -1)$.

2. U.S. Health care expenditures in billions of dollars rose from 600 in 1990 to 1,000 in 1998. Create a linear function $H(x)$ giving the expenditures $H(x)$ in billions of dollars in year x after 1990. Use your model to predict the expenditures in the year 2010.

3. Solve the absolute value inequality $|-10x + 1| - 4 \leq 12$ and graph the solution set.

4. Joan wants to buy a rug for a room that is 8 feet by 12 feet. She wants to leave a uniform strip of floor around the rug. She can afford 60 square feet of carpeting. What dimensions should the rug have?

5. Solve the equation $2x^4 = 7x^2 + 15$.

6. Solve the rational inequality $\frac{(x-1)^2(x-2)}{(3x-7)} \leq 0$.