HOMEWORK 4 - MATH 140

DUE DATE: Monday, February 14
INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. One part of each homework problem will be chosen at random and graded. Each question is worth 1 point. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Use graphing techniques to graph the function $f(x) = 3 - (x+2)^3$. Please, depict clearly the three key points shown in class.

2. Find the intercepts, create the sign table and then roughly sketch the graph of the polynomial $f(x) = x^2(x-3)(x+4)$.

3. Find the intercepts, create the sign table and then roughly sketch the graph of the polynomial $f(x) = 4x - x^3$.

4. Find the domain, the intercepts, the asymptotes, create the sign table and the roughly sketch the graph of the rational function $f(x) = \frac{3x}{x+4}$.

5. Find the domain, the intercepts, the asymptotes, create the sign table and the roughly sketch the graph of the rational function $f(x) = \frac{1-x^2}{x+5}$.

6. Find the domain, the intercepts, the asymptotes, create the sign table and the roughly sketch the graph of the rational function $f(x) = \frac{x^2+x-12}{x^2-4}$.

7. Solve the polynomial inequality $x^3 + 2x^2 - 3x \geq 0$.

8. Solve the rational inequality $\frac{3x^2+2x-1}{x+2} \leq 0$.