## EXAM 2 - MATH 112 YOUR NAME:

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. Find an equation for the tangent line to the graph of  $f(x) = x^2(2x-3)^5$  at x = 2.

2. Find an equation for the tangent line to the graph of  $f(x) = \sqrt[3]{(3x-7)^2}$  at x = 5.

3. After p practice sessions a subject of a psychology experiment could perform a task in  $T(p) = \frac{36}{\sqrt[3]{p+1}}$  minutes for  $0 \le p \le 10$ . Find T'(7) (with units) and write a clear interpretation of the answer.

4. Find the first and second derivatives, create the sign table and sketch the graph of the function  $f(x) = x^3 + 3x^2 - 45x - 47$ , clearly labeling all critical points on the graph.

5. Find the domain, the asymptotes, the first and second derivatives, create the sign table and sketch the graph of  $f(x) = \frac{1-x}{x+1}$ , clearly labeling all critical points on the graph.