QUIZ 7 - MATH 112 Monday, March 11

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Make a sign table for the first and the second derivatives of the function $f(x) = x^3(x-4)$. Show clearly intervals of monotonicity, relative max/min points, intervals of concavity and inflection points. (You do not have to sketch the graph of $y = f(x)$.)

2. An oil producing country can sell 1 million barrels of oil a day at a price of \$ 120 per barrel. If each \$ 1 increase in price results in a 10,000 barrel per day decrease in sales, what price will maximize the country's revenue?