MTH 261, Quiz #7, Spring 2019 Name _____

Instructions: You must show all work to receive full credit for the problems below. You may check your work with a calculator, but answers without work will receive minimal credit. Use exact answers unless the problem starts with decimals or you are specifically asked to round.

1. Find the absolute extrema of the function $f(x) = 4x^2 - \frac{1}{2}x^3$ on the interval $[0,8]$.

2. Raggs, Ltd., a clothing firm, determines that in order to sell x suits, the price per suit must be $p = 150 - 0.5x$. It also determines that the total cost of producing x suits is given by $C(x) = 4000 + 0.25x^2$.
   a. Find the total revenue $R(x)$.

   b. Find the total profit $P(x)$.

   c. How many suits must the company produce and sell in order to maximize profit?

   d. What is the maximum profit?

   e. What is the price per suit that must be charged in order to maximize profit?