QUIZ 2 - MATH 112 Friday, January 24

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

1. [4 points] Find the domain of the function

$$f(x) = \frac{x-1}{3+5x-2x^2}.$$

(Please, show all steps.)

2. [8 points] Suppose that a certain manufacturer has fixed costs \$2,700 and that it costs \$20 to produce each item. Suppose, further, that the Revenue function is given by $R(x) = -x^2 + 140x$, where x denotes the number of items produced and sold.

   (a) Write an equation for the cost function $C(x)$.

   (b) Find the break-even point(s) for this business.

   (c) Write an equation for the profit function $P(x)$.

   (d) Find how many items need to be produced and sold in order to maximize the business' profit.