Name _____

Homework 10
Section 3.4

1. (6) A certain item has the following demand function: $x = 7200+3p-0.4p^2$. Determine the price at which the demand is unitary.

2. (4,4) Suppose a company has cost and profit functions

$$C(x) = \frac{75}{x^2} + 12\sqrt{x} + 800 \qquad \text{and} \qquad P(x) = -500 + 240x + 9x^2 - 2x^3$$

respectively, where x is the number of items produced. Both $C(x)$ and $P(x)$ are given in hundreds of dollars.

(a) What is the company's marginal cost when 10 items are produced? Round to the nearest dollar.

(b) At what production level will the company's marginal profit be zero?

3. (6) Suppose a certain product has a demand function given by

$$x = f(p) = 2400 - 23p + \frac{200}{p}$$

Determine the elasticity of demand, E (to 2 decimal places), for this product, when the price of the item is \$50.
When the price of the item is \$50, is the demand elastic or inelastic?