Name: _____
Student ID: _____

Quiz 8

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. §3.3 #45 *(2 marks)* Find the derivative of the function f.

$$f(x) = \sqrt{1-x^2}\arcsin x$$

Question 2. §3.4 #13 The weekly demand for the Pulsar 25 color LED television is

$$p = 600 - 0.05x \quad (0 \leq x \leq 12000)$$

where p denotes the wholesale unit price in dollars and x denotes the quantity demanded. The weekly total cost function associated with manufacturing the Pulsar 25 is given by

$$C(x) = 0.000002x^3 - 0.03x^2 + 400x + 80000$$

where C(x) denotes the total cost incured in producing x sets.

a. *(2 marks)* Find the revenue function R and the profit function P.

b. *(3 marks)* Find the marginal cost function C', the marginal revenue function R' and the marginal profit function P'.

c. *(1 mark)* Compute $P'(2000)$ and interpret your results.

Question 3. §3.4 #23 *(2 marks)* Compute the elasticity of demand and determine whether the demand is elastic, unitary, or inelastic at the indicated price.

$$x = -\frac{5}{4}p + 20 \quad p = 10$$