

MATH 108 – QUIZ 3 – 17 SEPTEMBER 1998

Answer all of the following questions in the space provided. Show all work as partial credit may be given. Answers without justification, even if they are correct, will earn no credit.

1. (4 pts.) A coffee shop sells coffee at a price of \$1.50 per cup and at that price sells 200 cups per week. The shop estimates that for every \$.10 increase in the price they will sell 20 fewer cups per week. Express the number of cups sold each week,  $N$ , as a function of the price per cup,  $x$ .

2. (3 pts. each) Compute each of the following limits, if they exist.

(a)  $\lim_{x \rightarrow 0} \frac{x^2 + 1}{2x + 3}$

(b)  $\lim_{x \rightarrow 1} \frac{x^2 - x}{x - 1}$

(Extra Credit.) (2 pts.) If in #1, each cup of coffee costs \$.25 to make, express the weekly profit,  $P$ , as a function of the price,  $x$ .