Quiz Practice Questions 7 for Mathematics 223
Introductory Analysis I - Fall 2000
Material Covered: Sections 4.5.4.6 of workbook and text
For: Friday, 1st December

This is a 15 minute quiz, worth 5% and marked out of 5 points. The total possible points awarded for each question is given in square brackets at the beginning of each question. Anything that can fit on one side of an $8\frac{1}{2}$ by 11 inch piece of paper may be used as a reference during this quiz. A calculator may also be used. No other aids are permitted.

Name (please print): —————————————— . **ID Number:** ——————— .

last   first

———————————————————————————————————————

1. [1 point] Let $f(x) = 5^x$.

Then $f'(x) =$ ——————————————— .

2. [1 point] Let $f(x) = \log_3 x$.

Then $f'(x) =$ ——————————————— .

3. [1 point] Let $f(x) = (\log_8 x)\left(\sqrt[3]{6x}\right)$.

Then $f'(x) =$ ——————————————— .

4. [2 points] Let $D(p) = 17p + 3.5p^2 - 2p^3$.

   1. $E(p) =$ ——————————————— .

   2. At $p = 1.5$, the demand (circle one)
      is inelastic / has unit elasticity / elastic.

(1) $5^x \ln 5$

(2) $\frac{1}{x \ln 3}$

(3) $\sqrt[3]{6x} \frac{1}{x \ln 8} + \frac{1}{3}(6x)^{-2/3}(6) \log_8 x$

(4) elasticity

(a) $E(p) = -\frac{pD'(p)}{D(p)} = -\frac{p(17+7p-6p^2)}{17p+3.5p^2-2p^3} = \frac{-17p-7p^2+6p^3}{17p+3.5p^2-2p^3}$

(b) inelastic since $E(1.5) = -0.789$