

UNIVERSITY OF WISCONSIN
Economics 101 – Spring 2007
Professor Brown

Problem Set 5 Answers

1.
 - a. inelastic
 - b. inelastic
 - c. elastic
 - d. inelastic
 - e. elastic

2.
 - a. negative
 - b. positive

3.
 - a. A linear demand curve is unit elastic at its midpoint. So since the x-intercept of this line is 80 and the y-intercept is 20, the midpoint is $Q = 40$, $P = 10$. At this point, the price elasticity of demand is 1.
 - b. At a price of 6, $Q = 80 - 4(6) = 56$. At a price of 10, $Q = 80 - 4(10) = 40$. So the price elasticity of demand is

$$\varepsilon^D = \frac{|\% \Delta Q|}{|\% \Delta P|} = \frac{\left| \frac{Q_2 - Q_1}{\left(\frac{Q_2 + Q_1}{2} \right)} \right|}{\left| \frac{P_2 - P_1}{\left(\frac{P_2 + P_1}{2} \right)} \right|} = \frac{\left| \frac{40 - 56}{\left(\frac{96}{2} \right)} \right|}{\left| \frac{10 - 6}{\left(\frac{16}{2} \right)} \right|} = \frac{\frac{1}{3}}{\frac{1}{2}} = \frac{2}{3}$$

- c. The elasticity is less than one so you should increase the price. In fact, since total revenue is maximized at the unit elastic point, a price of \$10 will maximize total revenue.