Economics 301  
Spring 2008  
Problem set # 3

Name: ______________________________________

1. Perloff, fourth edition: question 15 page 71

2. Perloff, fourth edition: question 35 page 73

3. Perloff, fourth edition: question 1 page 103
4. Suppose demand for TV is estimated to be \( Q = 3000 - 5p + 10p_x - 2p_z + 0.1m \). If \( p = 80, \ p_x = 50, \ p_z = 150, \) and \( m = 30,000 \); answer the following questions:

1. What is the price elasticity of demand?
2. What is the cross price elasticity with respect to commodity \( x \)? Give an example of what commodity \( x \) might be.
3. What is the cross elasticity with respect to commodity \( z \)? Give an example of what commodity \( z \) might be.
4. What is the income elasticity?

5. Suppose a consumer has an income of $500 and faces prices \( p_X = 5 \) and \( p_Y = 10 \).

1. Write the equation of the budget constraint.
2. Draw the budget constraint, placing good \( X \) on the horizontal axis. Label \( BC \).
3. What is the slope of \( BC \)?
4. Suppose income decreases to $300. Draw the new budget constraint and label it \( RS \).
6. Consider two goods that are perfect substitutes. What is likely to be true about their relative prices? Can you confirm your hypothesis with examples?