Finance 30210
Problem Set #2

1) Suppose that you have the following data on gasoline sales:

Gasoline Sales (in Thousands of Barrels)			
1995Q1	22,434	**1997Q1**	22,776
1995Q2	23,766	**1997Q2**	24,491
1995Q3	23,860	**1997Q3**	24,751
1995Q4	23,391	**1997Q4**	24,170
1996Q1	22,662	**1998Q1**	23,302
1996Q2	24,032	**1998Q2**	24,045
1996Q3	24,171	**1998Q3**	25,437
1996Q4	23,803	**1998Q4**	25,272

a) Estimate a linear trend for the data and use it to forecast gasoline sales for each quarter of 1999. Calculate the error of your forecasts.
b) Now, repeat (a) using a log-linear model. Which trend fits the data best? Why would we expect both forecasts to be rather poor?
c) Adjust the linear model for seasonality using the ratio to trend method.
d) Repeat (c) using dummy variables.

2) Consider the following data for housing starts in the US

Index of Housing Starts (1985 = 100)	
1986	116
1987	122
1988	121
1989	121
1990	111
1991	97
1992	113
1993	125
1994	146
1995	142
1996	156
1997	162

a) Calculate a forecast 1998 using exponential smoothing with w = .7 and w =.3. Which of these forecasts is better?
b) Repeat (a) using a moving average.

3) Suppose that you estimated the following demand curve.

$$Q = 90.5 - 3.36P + .002I$$

Q Represents quantity demanded, P represents price and I represents average income.

You know that the current market price is $20 and average income is $20,000

a) Calculate current demand.
b) Calculate the price elasticity of demand.
c) Calculate the income elasticity of demand

How would your answers change if you estimated this demand curve in log form?

$$\ln(Q) = 63.6 - 2.5\ln(P) + .78\ln(I)$$

4) Suppose that you have estimated the following demand curve:

$$Q = 90.5 - 3.36P + .002I$$

You know that the current market price is $20 and average income is $20,000.

a) Calculate the markets total willingness to pay.
b) Calculate the market's consumer surplus.