## MATH 110/003 - Carbon Dioxide Emissions and World Population

### 1 - Data

The following data comes from the report on Population Growth and Carbon Dioxide Emissions directed by Anqing Shi of the Development Research Group at the World Bank.

Here, I denotes global emissions of CO<sub>2</sub> per year in gigatons and P denotes world population in billions of persons.

year	2000	2005
Ι	8.29	9.41
P	6.06	6.43

# 2 - A model for global carbon dioxide emissions

The following model is a slightly simplified version of the model developed by Dietz and Rozda in 1997. Here, I denotes global emissions of CO<sub>2</sub> per year in gigatons and P denotes world population in billions of persons. Then, the model is:

$$\ln(I) = a + b\ln(P)$$

for a and b constants to be determined.

## 3 - An assumption

For the purpose of our work, we'll assume that the yearly percentage increase in population is constant.

#### 4 - Goals

Your team's objective is to predict the rate of change of global emissions of carbon dioxide in 2010. You will produce a report which describes how you obtained your result.

Your result will then be used later on to estimate the yearly increase of carbon dioxide in ppm.