PERCENTAGE PROBLEMS III

1) I invest £2000 in a savings account paying 6% per annum interest. If I leave all the money in the account, how much will I have after: (a) 1 year   (b) 3 years   (c) 20 years

2) The population of a certain country is estimated to increase by 8% each year. In 1990 it was 45 million. Assuming 8% growth per year,
(a) What will it be in (i) 1995? (ii) 2010?
(b) In what year will the population first exceed 100 million?

3) The value of my car depreciates by 12% each year. I paid £8000 for it.
(a) What will it be worth after I have had it for 4 years?
(b) After how many years will it be worth less than half what I paid for it?

4) Suppose the savings account in Q1 paid 0.5% per month interest. Recalculate your answers for this new situation.

5) A second hand car salesman has a markup of 30% on all the cars which he sells.
(a) He buys a car for £2350. How much will he sell it for?
(b) He offers a car for sale at £2275. How much did he pay for it?

6) A shop is advertising a sale with 20% off all goods.
(a) What is the sale price of a dishwasher with a full price of £450?
(b) What was the full price of a freezer costing £352 in the sale?

7) A video recorder is priced at £185, including VAT at 17.5%. However, I can buy through an organisation which is exempt from VAT. How much will I pay for the video recorder?

8) In a school of 960 pupils, a class carrying out a survey about methods ,of travelling to school gives a questionnaire to 180 pupils. They find that 26 pupils cycle to school.
(a) What percentage of those questioned cycled to school?
(b) If this is representative of the school as a whole, how many pupils cycle to school?

9) (a) Alex has £340 in her building society account on 1st January 1990. The account pays 12% interest per annum. How much will she have on 1st January 1991?
(b) On 1st January 1991, Alex withdraws £120 to buy a bike. If she makes no more withdrawals, how much will she have on 1st January 1992?

10) The number of cars on the road is estimated to increase by 5% each year. There were 8.4 million cars in 1990; how many will there be in 1995?

11) (a) The population of a town has fallen by 12% in the last ten years. The present population is 54120. What was the population ten years ago?
 (b) The number of children in schools in the town has fallen by 18%. If there were 9500 schoolchildren ten years ago, how many are there now?
(c) Find what percentage the number of schoolchildren formed of the total population (i) ten years ago and (ii) today.

12) It is estimated that a new car depreciates in value by 30% during the first year of its life, and 20% during subsequent years. I buy a new car .for £7200, and keep it for 4 years. How much is it worth at the end of this time?

13) An estate agent charges 1.5% commission on the sale of houses. On a certain house they made £1440. How much was the house sold for?

14) The rate of VAT is 17.5%. A firm wishes to keep the price of a camera under £100 by advertising it as "____ + VAT = only £99 !!". What price should ____ be?