Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Your dad has just bought a new truck for $ 30,000. A friend of his, who is an experienced mechanic, has told him that these trucks depreciate at the rate of 13% per year.

   (a) Make a short table showing the value $V(t)$ of the truck after t years, for $t = 0, 1, \ldots, 4$.

   (b) Identify the initial value and the yearly depreciation (or decay) factor.

   (c) Write a model for the value V of the truck versus time t; make sure to explain the meaning of the variables used.

   (d) Write in function notation the value of the truck in 12 years time and compute it.

   (e) Your dad needs your help: He would like to sell the truck when its value falls to a third of its original price. Can you help him figure out after how many years he has to put the truck on the market?

2. A certain population increases by 16% each year. Please, show all your calculations in figuring out the following questions.

(a) By which percent is the population increasing each decade?

(b) By which percent is the population increasing every quarter (3 months)?