In Class Exercises (ICE) - 10/20/00

Let P(t) represent the total petroleum reserves on Earth at the beginning of year 't.' P(t) is measured in barrels. You may assume that no new petroleum is being made (except in the last question).

- ***What are the units of $\frac{dP}{dt}$?***

- ***What is the sign of $\frac{dP}{dt}$ when t = 1999 ? Write a sentence or two explaining why your answer makes sense.***

- ***Explain the meaning of the following algebraic expression in practical terms.***

$$\left.\frac{dP}{dt}\right|_{t=1980} = R$$

- ***At the Motonui Synthetic Petrol plant in Taranaki, New Zealand, petroleum products are made out of natural gas. The rate at which petroleum is produced is too small to affect the sign of $\frac{dP}{dt}$. What effect does the Motonui plant have on the size of $\frac{dP}{dt}$?***