7. [8 points] An environmental impact study has determined that most of the pollution in the air in a small town is produced by automobile exhaust. Let $P(c)$ be the level of carbon monoxide in the air (in mg per m$^3$) produced by $c$ cars in this town in a day. Assume that $P(c)$ is invertible. Let $A(t)$ be the number of cars in the town, $t$ days after January 1st, 2013 in the town.

a. [2 points] What is the practical interpretation of the vertical intercept of the function $y = A(t)$? Use a complete sentence and include units.

b. [2 points] Write down a practical interpretation for the equation $P(A(2)) = 1$. Use a complete sentence and include units.

c. [2 points] Write an expression for the number of cars that produce a level of carbon monoxide in the air of 10 mg per m$^3$ in a day in this town.

Answer: 


d. [2 points] Let $c_0$ be the number of cars in the town during Thanksgiving day and $p_0$ be the average level of carbon monoxide in the air (in mg per m$^3$) during the year 2013. Write an equation that states the following fact:

The level of pollution in the town (in mg per m$^3$) during Thanksgiving day was exactly 20% higher than the average level of carbon monoxide in the air (in mg per m$^3$) during the year 2013.

Answer: 