Answer on Question #69666 – Math – Differential Equations

Question

Which of the differential equation represent the time rate of change a population $P(t)$ with constant birth and death rate is proportional to the size of the population.

Solution

For the closed system with constant birth and death rate is proportional to the size of the population, the time rate of change a population is given by

$$\frac{dP(t)}{dt} = (k_1 - k_2)P(t).$$

Here k_1 is the growth rate coefficient and k_2 is the death rate coefficient.

Answer: $\frac{dP(t)}{dt} = (k_1 - k_2)P(t).$