Math 104Q

Group Project on Exponential Growth: The Black Bear Population

Exponential Growth Model

$$P(t) = P_0 e^{kt}$$

where:

t = time (in units of time)
k = the exponential growth rate (a constant fraction)
e = 2.7 (approximately)
P_0 = population's size at time t = 0 (the time when the counting started)
P(t) = population's size at time t

In 1999 the black bear population in Granite Park was 325 and the exponential growth rate of the black bear population was 5% per year.

1. Find the exponential growth function for the black bear population.

Year when t = 0:_____.
k =_____.
P_0 =_____.

Answer: P(t) =_____.

2. According to this model, what will the black bear population be in 2009? Round to the nearest whole number.

3. How long will it take for the black bear population to reach 800? Round to the nearest whole number.