2. [8 points] In the year 2000, the population of the town of Ashford was 3 thousand people. By 2009, it had grown to 7 thousand.

For parts **a**. and **b**. below, show any needed work and give numerical values exactly or rounded to at least three decimal places.

    a. [2 points] Assuming that the population of Ashford, in thousands, is a linear function $L(t)$ of t, the number of years since 2000, write a formula for $L(t)$.

$$L(t) = \underline{\qquad 3 + \frac{4}{9}t \textbf{ or } 3 + 0.444t \qquad}$$

    b. [3 points] Now, instead, assuming that the population of Ashford, in thousands, is an exponential function $E(t)$ of t, the number of years since 2000, write a formula for $E(t)$.

$$E(t) = \underline{\qquad 3\left(\frac{7}{3}\right)^{t/9} \textbf{ or } 3(0.920)^t \qquad}$$

The population of a neighboring town, Beaumont, has increased by 3% each year since 2000.

    c. [3 points] Completely fill in the circle corresponding to the **one** best description of the function $P(t)$ that gives the population of Beaumont, in thousands, as a function of t, the number of years since 2000.

       ○ $P(t)$ is linear because it has a slope of 0.03.

       ○ $P(t)$ is linear because the population increases at a constant 3% rate.

       ○ $P(t)$ is exponential because it increases by 30 people each year on average.

       ● $P(t)$ is exponential because it has a constant growth factor of 1.03.

       ○ There is not enough information to determine whether $P(t)$ is linear or exponential.