1. Solve the following equations

   (a) $2 = 1.02^t$

   (b) $5e^{3t} = 8e^{2t}$

2. The gross world product is $W = 32.4(1.036)^t$, where W is in trillions of dollars and t is time in years since 2001. Find a formula for the world gross world product using a continuous rate.

3. In 2011, the population of China and India were approximately 1.34 and 1.19 billion people, respectively. However, the growth rate in China is 0.4% while the population in India is growing by 1.37% per year. If the growth rates remain constant, how long will it take for the two countries to have equal populations.