Math 111 Quiz #5 Answers

1. (a) $P = 250(1.02)^t$

   (b) $P = 250(1.02)^40 \approx 552.01$ million

   (c) Solving the equation $400 = 250(1.02)^t$

   Exact answer: $t = \frac{\log(400/250)}{\log(1.02)}$ or $t = \frac{\ln(400/250)}{\ln(1.02)}$

   (Remember: There are different ways to express the answer exactly with logs. So, your answer may look a little different than what you see here.)

   Decimal Approximation: $t \approx 23.734$ (Between the years 2013 and 2014)

2. (a) Exact Answer: $x = \frac{-\log(8)}{\log(2) - 2\log(3)}$ Approx. Answer: $x \approx 1.3825$

   (b) Can express it in exponential form as $4^2 = x + 1 \quad \Rightarrow \quad x = 15$