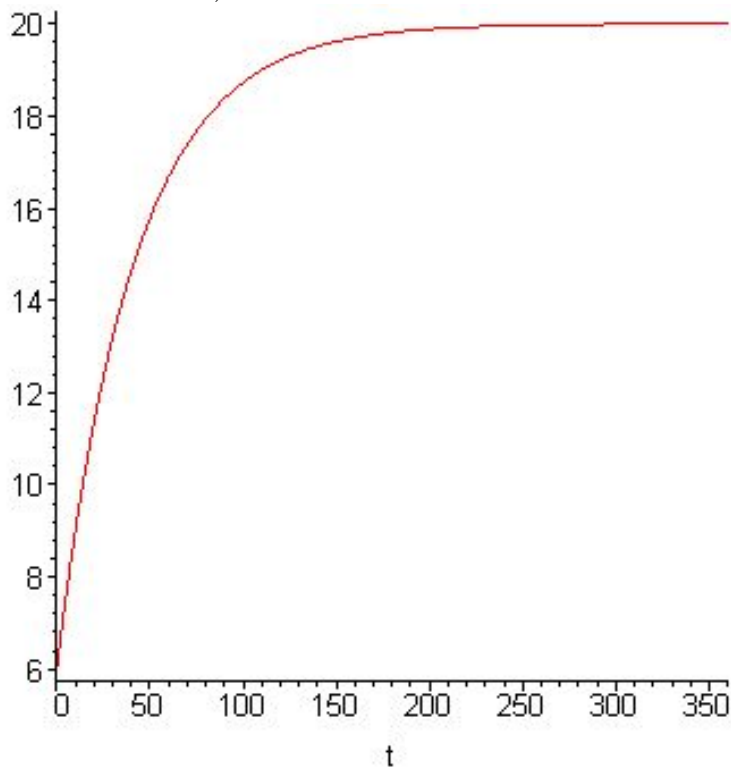


The following are the answers for the remainder of Section 4.4

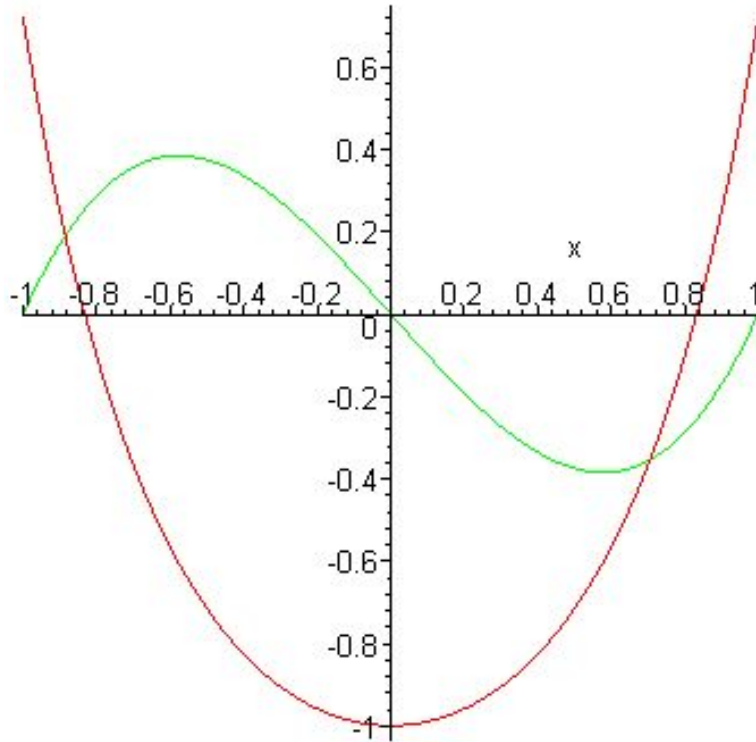
68. a) Either formula below is fine:

$$t = \ln \left(\frac{M - P}{C} \right)^{-\frac{1}{k}} = -\frac{1}{k} \ln \left(\frac{M - P}{C} \right)$$

b) Use the formula in part a using $M = 20, C = 14, k = 0.024, P = 12$ to get $t = 23.32$ months. c)



69, 76. Use the graphing calculator to calculate the points of intersection for the two graphs. For 76 you should get the graph



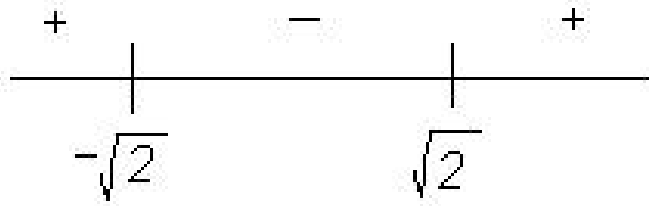
and the points should be $x = -0.8856$ and $x = 0.7059$.

79. To solve the inequality, take the log (base 10) of each part. Taking the log won't affect the direction of the inequalities. Then you get

$$\log 2 < \log 10^x < \log 5$$

$$\log 2 < x < \log 5$$

80. Use a sign chart to check certain values. $x^2 - 2 = 0$ when $x = \pm\sqrt{2}$, and e^x is never equal to zero. Thus checking values on the number line we get:



So $x^2e^x - 2e^x < 0$ on the interval $(-\sqrt{2}, \sqrt{2})$.