p. 97 #2 - 6

p. 87 #9.

$y_1 = 1250(2)^{12x}$ x: time (years)

Better using months:

$y_1 = 1250(2)^{1x}$ x: time (months)

$y_2 = 40\,000\left(\frac{1}{2}\right)^x$ y: bee population

$$\frac{1250(2)^x}{1250} = \frac{40\,000\left(\frac{1}{2}\right)^x}{1250}$$

$$\frac{2^x}{\left(\frac{1}{2}\right)^x} = \frac{32\left(\frac{1}{2}\right)^x}{\left(\frac{1}{2}\right)^x}$$

$$\left(\frac{2}{\frac{1}{2}}\right)^x = 32$$

$$4^x = 32$$

$$\log_4 32 = x$$

$$x = \frac{\log 32}{\log 4} = 2.5$$

$$\left(\frac{a}{b}\right)^c = \frac{a^c}{b^c}$$

ex: $\left(\frac{2}{3}\right)^4 = \frac{2^4}{3^4}$

p. 97

#2. $y = 3500\left(1 + \frac{0.03}{4}\right)^{4(5)} = 3500(1 + 0.0075)^{20}$

Compound Interest

$$A = P\left(1 + \frac{i}{n}\right)^{nt}$$

$= 3500(1.0075)^{20}$

$= 4064.14$

3. a) $1500(1.04)^{6} = 1897.98$

b) $1500\left(1+\frac{0.04}{2}\right)^{2(6)} = 1902.36$

c) $1500\left(1+\frac{0.04}{4}\right)^{4(6)} = 1904.60$

d) $1500\left(1+\frac{0.04}{12}\right)^{12(6)} = 1906.11$

e) $1500\left(1+\frac{0.04}{365}\right)^{365(6)} = 1906.85$