

Your parents bought their house in 1983 for \$30000. If value increased 5% per year

a) Estimate house value in 2013

$$y = c(a^x)$$

$$y = 30000(1+0.05)^{30}$$

$$y = 129658.27$$

∴ The house has a value
of \$129658.27

b) When will the house be quintuple its 1983 value?

$$(30000 \times 5) = 30000(1+0.05)^x$$

$$5 = 1.05^x$$

$$x = \log_{1.05} 5$$

$$x = \frac{\log 5}{\log 1.05}$$

$$x = 32.99$$

∴ In 33 years
the house will quintuple

A car sells for \$20,000. Each year it depreciates by 15%. What is the car's value after 6 years?

$$y = 20000(1-0.15)^6$$

$$y = 20000(0.85)^6$$

$$y = 7543.00$$

A product of a nuclear explosion is plutonium 239 which has a half life of 24,000 years. What % is remaining after 1000?

$$y = c(a^x)$$

$$y = 100(0.5^{\frac{1000}{24000}})$$

$$y = 97.2\%$$

∴ 97.2% is remaining

A population is growing exponentially. At time 0 the population is 35000. In 10 years, population is 44400.

a) Find the rate of growth

$$y = c(a^x)$$

$$44400 = 35000(a)^{10}$$

$$1.269 = a^{10}$$

$$1.0241 = a \longrightarrow (1+0.0241)$$

∴ Rate of growth is 2.41 %

Homework : Nelson's pg 110 #2,3,6,7,11-13