

1. The value of a house in 2008 was \$250,000. The value has been decreasing 5.08% each year.

a) Find the value of the house in 2015.

b) Find the value of the house in 2005.

2. The number of visits to a certain website has been increasing 1.29% every 20 minutes. By 4:30pm the website had 42,600 visits. Find the number of visits by 9:00pm that same day.

3. The population of a certain city has been increasing exponentially since 2001. The table below shows population data for a few years.

Year	Population
2001	128,000
2003	131,200
2005	134,480

a) The population increases by what percent every two years?

b) Use this data to predict the population of this city in 2015.

1. The value of a house in 2008 was \$250,000. The value has been decreasing 5.08% each year.

a) Find the value of the house in 2015.

$$x = 2015 - 2008 = 7$$

$$y = \$173,557.79$$

$$100 - 5.08 = 94.92\%$$

$$b = .9492$$

$$y = 250000(.9492)^x$$

$x = \# \text{ yrs since } 2008$

b) Find the value of the house in 2005.

$$x = 2005 - 2008 = -3$$

$$y = \$292,325.58$$

2. The number of visits to a certain website has been increasing 1.29% every 20 minutes. By 4:30pm the website had 42,600 visits. Find the number of visits by 9:00pm that same day.

$$x = 9:00\text{pm} - 4:30\text{pm} = 4\frac{1}{2} \text{ hrs} = \frac{270 \text{ min}}{20} = 13.5$$

$$y = 42,600(1.0129)^{13.5} = 50,648$$

$$100 + 1.29 = 101.29\%$$

$$b = 1.0129$$

$$x = \# 20 \text{ min periods since } 4:30 \text{ pm}$$

3. The population of a certain city has been increasing exponentially since 2001. The table below shows population data for a few years.

Year	Population
2001	128,000
2003	131,200
2005	134,480

a) The population increases by what percent every two years?

$$\% \text{ change} = \frac{\text{Amount of change}}{\text{original amt}} \times 100$$

$$= \frac{131,200 - 128,000}{128,000} \times 100 = \frac{3200}{128,000} \times 100 = 2.5$$

$$2.5\% \text{ increase every 2 yrs}$$

b) Use this data to predict the population of this city in 2015.

$$x = \frac{2015 - 2001}{2} = \frac{14}{2} = 7$$

$$y = 128,000(1.025)^7 = 152,152$$

$$100 + 2.5 = 102.5\%$$

$$b = 1.025$$

$$y = 128,000(1.025)^x$$

$x = \# 2 \text{ yr periods since } 2001$