

1. For each exponential equation state the percent change the base represents and whether it's an increase or a decrease.

a)  $y = 2400(0.0602)^x$

b)  $y = 28.5(2)^x$

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 2005.

b) Find the value of the house in 2015.

c) Find, to the nearest hundredth, the number of years it will take for the house to be worth \$100,000

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.

Algebra 2 Bellwork Tuesday, June 7, 2016

Answers

1. For each exponential equation state the percent change the base represents and whether it's an increase or a decrease.

a)  $y = 2400(0.0602)^x$   
 $\frac{6.02\%}{-100\%} \rightarrow 93.98\% \text{ dec.}$

b)  $y = 28.5(2)^x$   
 $\frac{200\%}{-100\%} \rightarrow 100\% \text{ inc.}$

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

$100\% - 5.08\% = 94.92\%$

$y = 250,000 (.9492)^x$

a) Find the value of the house in 2005.

$x = 2005 - 2008 = -3 \rightarrow y = 250,000 (.9492)^{-3} = \$292,325.58$

b) Find the value of the house in 2015.

$x = 2015 - 2008 = 7 \rightarrow y = 250,000 (.9492)^7 = \$173,557.79$

c) Find, to the nearest hundredth, the number of years it will take for the house to be worth \$100,000

$\frac{100,000}{250,000} = \frac{250,000 (.9492)^x}{250,000}$

$.4 = .9492^x$

$x \approx 17.58 \text{ yrs}$

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.

$100\% + 1.29\% = 101.29\% \rightarrow y = 42,600 (1.0129)^x$

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

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