1. The number of subscriptions to a newspaper has been decreasing 13.4% each year. The number of subscriptions in 2010 was 154,000.

Find the number of subscriptions in 2011.

$100 - 13.4 = 86.6\%$

$154{,}000(.866) = 133{,}364$

2. The value of an investment in 2013 was $52,300. The value of the investment has been increasing 6.7% each year. Find the value of the investment in 2014.

$100 + 6.7 = 106.7\%$

$52{,}300(1.067)$

$\$55{,}804.10$

Exponential Equations:

Standard Form: $y = a\,(b)^x$

- x: Number of time periods.
- a: Initial Amount
- b: Base which is either a growth factor or a decay factor

Exponential Growth:

When the base is > 1

Exponential Decay:

When the base is <1

Find the base for each situation:

1. Each minute there is 19.11% less.

b = .8089 x represents: # min

100 − 19.11 = 80.89%

2. Each year there is 6.2% more.

b = 1.062 x represents: #years

100 + 6.2 = 106.2%

Does each represent Exponential Growth or Decay?

1. $y = 681(1.01003)^x$ G

2. $y = 0.00987\left(\frac{27}{31}\right)^x$ D

3. $y = 750(1.43)^{-x}$ D

because of the negative exponent the base becomes $\frac{1}{1.43}$ which is less than 1.

Determine the percent change each exponential equation represents and if it's an increase or a decrease.

1. $y = 500(0.018)^x$

X100
1.8%
−100
−99.82% dec

2. $y = 2.7(1.842)^x$

X100
184.2%
−100
84.2% inc