Algebra 8-4: Exponential Decay

Warm-Up

100% + 5%

105% = 1.05

1. Suzie is saving money. She started with $50 and is saving 5% each day. How much money will she have after 90 days?

$y = ab^x$

$y = 50(1.05)^{90} = \$4036.52$

2. Suzie is spending money. She started with $50 and is spending 5% each day. How much will she have after 90 days?

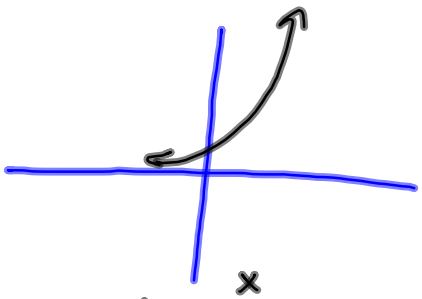
100% − 5%

$y = ab^x$ $\quad y = 50(.95)^{90}$

$y = \$4.49$

March 03, 2014

Exponential Growth



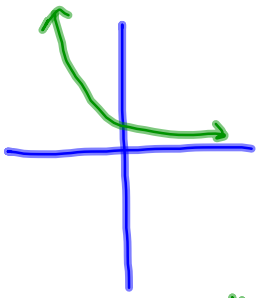
$y = b g^x$

$g > 1$

100% + growth %

increase

Exponential Decay



$y = b g^x$

$0 < g < 1$

100% − decay %

decrease

Example $y = b g^x$ $y = 100(.90)^x$

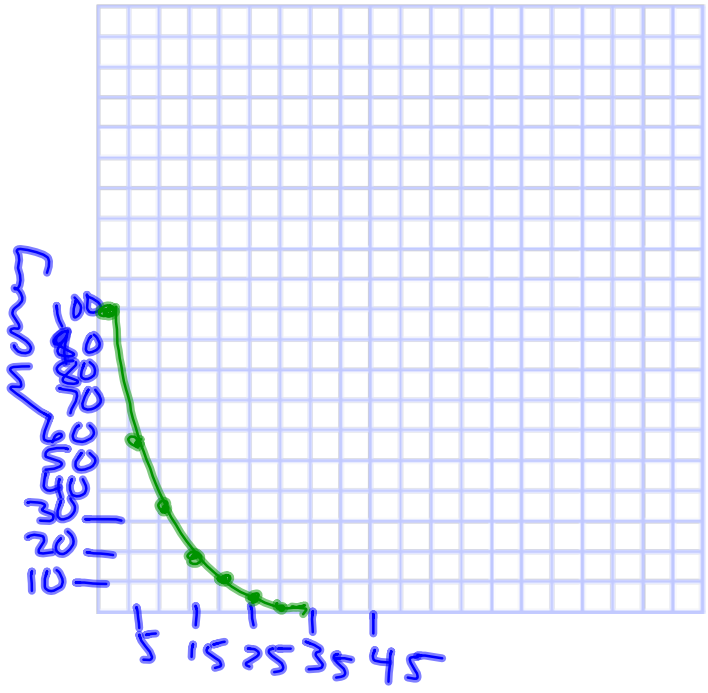
100%
- 10%
90%

1. Becca starts with $100 each week. She pays her teacher 10% each week for helping her. How many weeks go by before she runs out?

1. Make a table.

2. Graph. $y = 100(.9)^x$

weeks	$
0	100
5	59.05
10	34.87
15	20.59
20	12.16
25	7.18
30	4.24
35	2.50
90	.0076
95	.004



95 weeks

2. For a certain type of calculator that cost $350 in 1973, the price dropped about 19% each year.

What was the price 15 years later?

100% − 19%

81%

$y = b g^x$

$= 350(.81)^{15}$

$= \$14.84$