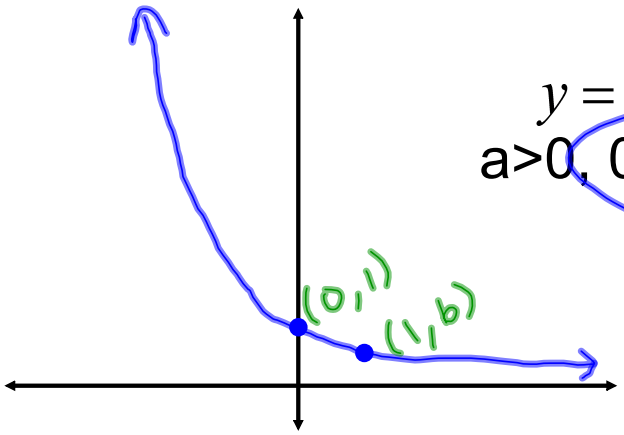
Chapter 7.2: Graph Exponential Decay Equations



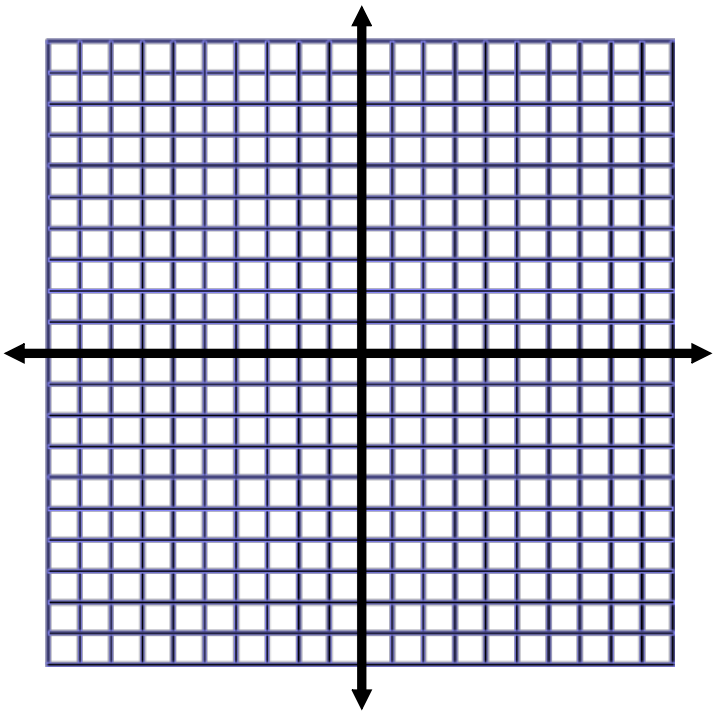
$y = ab^x$

a>0, 0<b<1

$f(x) = a(b)^{(x-h)} + k$

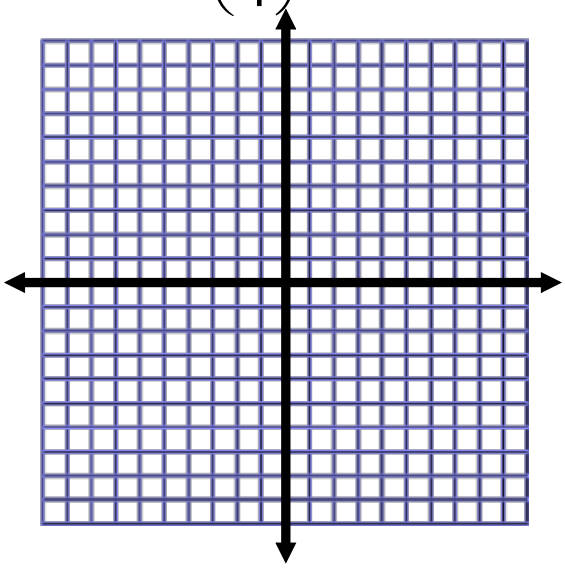
fraction

Graph: $y = \left(\frac{1}{2}\right)^x$

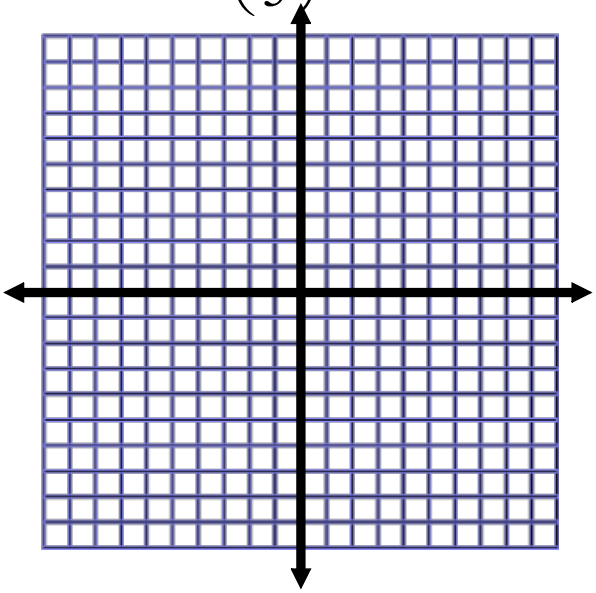


Graph:

$y = 2\left(\frac{1}{4}\right)^x$

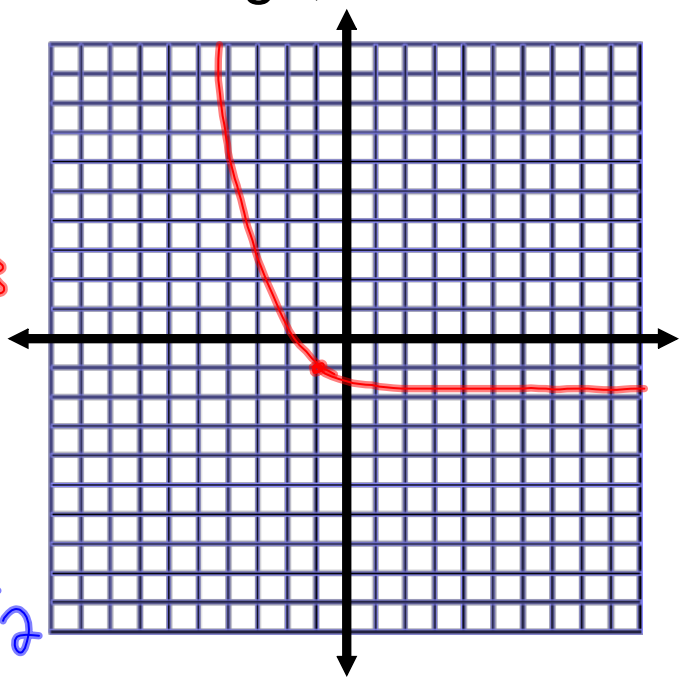


$y = -3\left(\frac{2}{5}\right)^x$



Graph, state domain/range, from PF.

$y = 3\left(\frac{1}{2}\right)^{x+1} - 2$



Stretched by 3
left 1
exp. decay
down 2

$x \in \mathbb{R}$
$y > -2$

Exponential Decay Models

$$y = a(1-r)^t$$

y = quantity

a = initial amount

r = rate

t = time in years

A new snowmobile costs $4200. The value of the snowmobile decreases by 10% each year.

- write a model giving the snowmobile value y(in $) after t years. Estimate the value after 3 years. $y = 4200(1-.1)^t$ $y = 4200(1-.1)^3$ $y = \$3061.80$
- graph the model
- when will the snowmobile be worth $2500

$y = 2500$ $x = 4.6$ years

Homework: Chapter 7.2 pg.489
#4,6,10,14,18,20,22,32