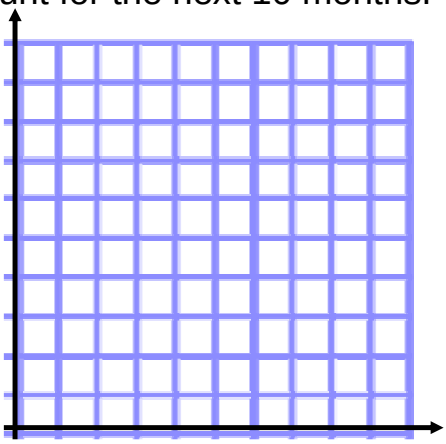
Warm-Up 9/4

Create a graph to represent the following situation.

1. Tom starts with $2 in his bank account. He then doubles the amount in his account for the next 10 months.



A. What type of function is this? (discrete or continuous; linear or exponential)

B. Label your x- and y-axis.

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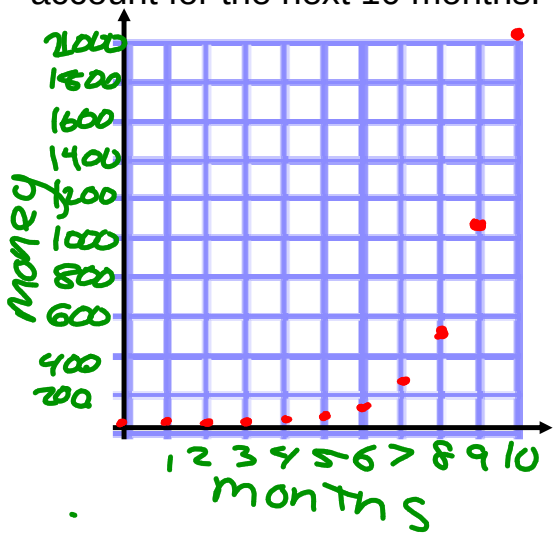


A. What type of function is this? (discrete or continuous; linear or exponential)

B. Label your x- and y-axis.

2, 4, 8, 16, 32, 64, 128
256, 512, 1024, 2048

Finish group matching real-world activity.

Today's Goal

I can...

- transform functions

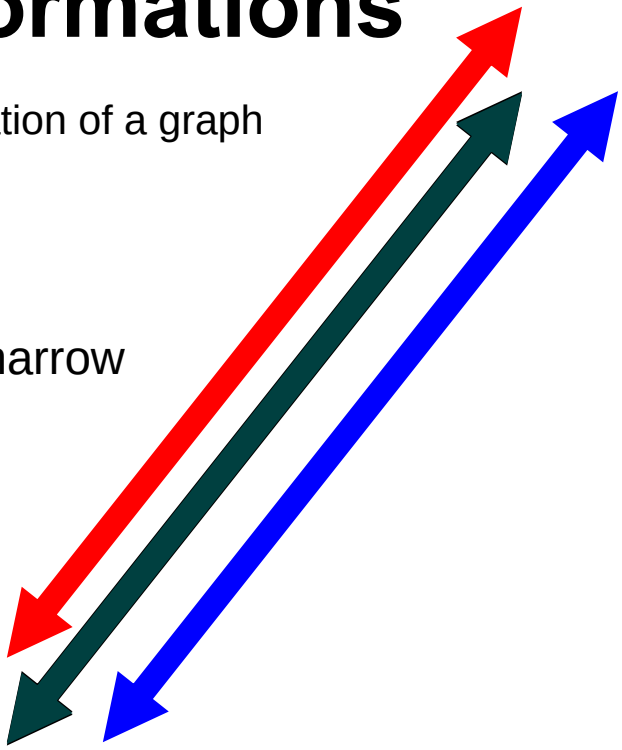
Transformations

Transformation-the manipulation of a graph

Vertical-up/down

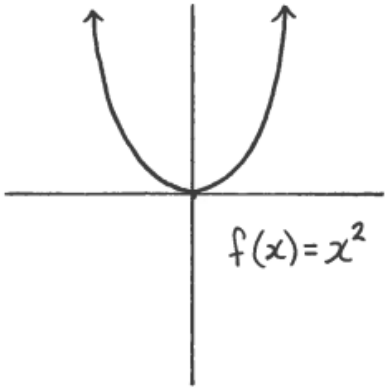
Horizontal-left/right

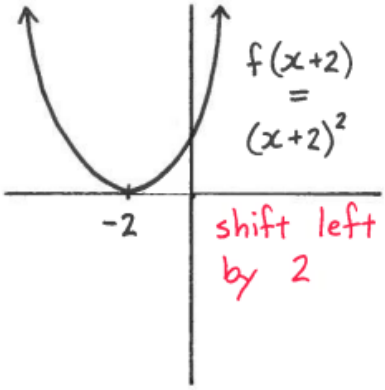
Stretching vertically-wide/narrow

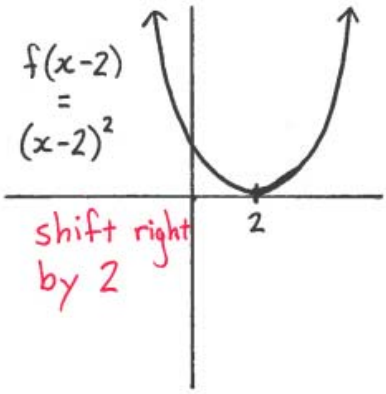


If you change the input (domain)...

New Function	Points	Graphically
f(x + d)	(x, y) to (x - d, y)	left d spaces
f(x - d)	(x, y) to (x + d, y)	right d spaces







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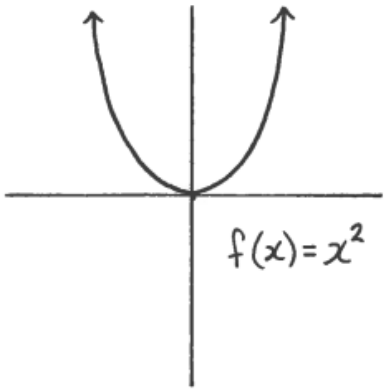
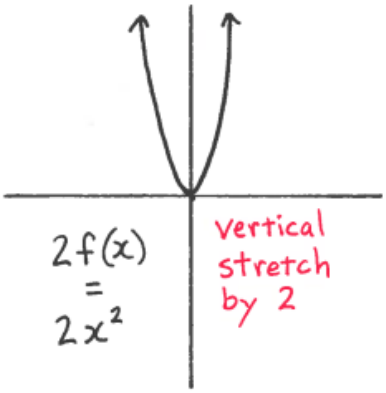
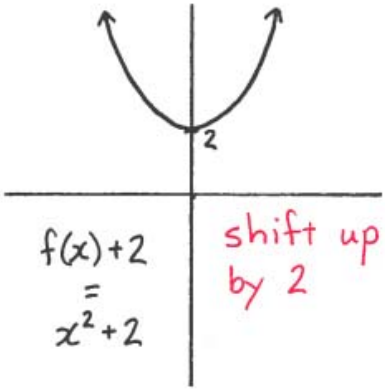
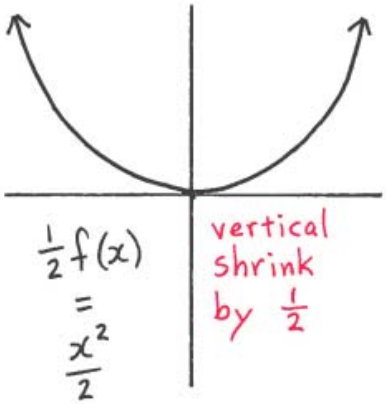
If you change the output (range)...

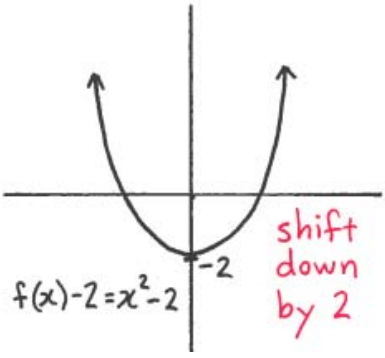
New Function	Points	Graph
f(x) + d	(x, y) to (x, y + d)	up d spaces
f(x) - d	(x, y) to (x, y - d)	down d spaces
cf(x)	(x, y) to (x, cy)	stretch vertically by c
$\frac{1}{c}$ f(x)	(x, y) to (x,$\frac{1}{c}$y)	shrink vertically by c


$f(x)=x^2$


$2f(x)$
$=$
$2x^2$
vertical
stretch
by 2


2
$f(x)+2$
$=$
x^2+2
shift up
by 2


$\frac{1}{2}f(x)$
$=$
$\frac{x^2}{2}$
vertical
shrink
by $\frac{1}{2}$


-2
$f(x)-2=x^2-2$
shift
down
by 2

$f(x) = 3x + 7$

up 7 spaces

$f(x) + 7 = 3x + 7 + 7$

$= 3x + 14$

2 spaces left

$f(x+2) = 3(x+2) + 7$

Homework

Create 2 graphs about yourself. Be sure to label your x- and y-axis and make it discrete or continuous.