

$$A(t) = P\left(1 + \frac{r}{n}\right)^{nt}$$

invests \$1500

$$P = \$1500$$

$$r = .04$$

$$n = 1$$

$$t = 7$$

$$A(t) = 1500\left(1 + \frac{.04}{1}\right)^{(t)} \leftarrow 7$$

@.04%

compounded
annually

6-5 Graphing Exponentials

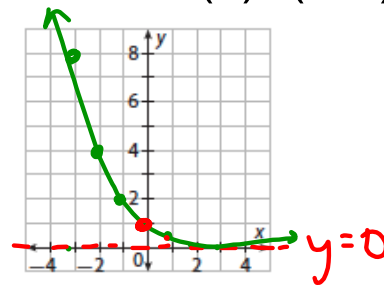
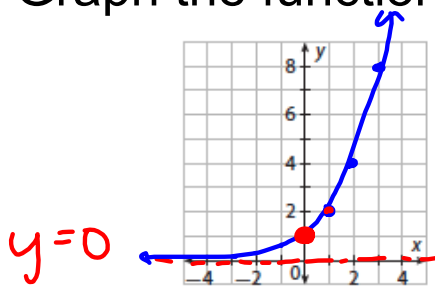
I can graph exponential functions given an equation

I can identify key features from an equation or a graph

Complete the input-output table for each of the parent exponential functions below.

x	$f(x) = 2^x$	x	$f(x) = (1/2)^x$
-3	$2^{-3} = 1/8$	-3	8
-2	$2^{-2} = 1/4$	-2	4
-1	$2^{-1} = 1/2$	-1	2
0	$2^0 = 1$	0	1
1	$2^1 = 2$	1	$1/2$
2	$2^2 = 4$	2	$1/4$
3	$2^3 = 8$	3	$1/8$

Graph the functions $f(x) = 2^x$ and $f(x) = (1/2)^x$



What is the domain of each function?

x 's Left \rightarrow Right \rightarrow

ALWAYS: $(-\infty, \infty)$

What is the range of each function?

y 's Bottom \rightarrow Top

$(0, \infty)$

Range changes if
V-Shift or V-Flip

What is the y-intercept of each function?

$(0, 1)$

Graphing Task

$$b^x + 1 \rightarrow \text{Shift up 1}$$

$$b^x - 2 \rightarrow \text{Shift down 2}$$

Shifts
H. Asymptote

$$b^{x+3} \rightarrow \text{Shift Left 3}$$

$$b^{x-1} \rightarrow \text{Shift Right 1}$$

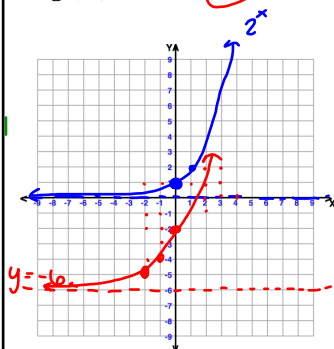
H.
Shift
(backward)

$$-(b)^x \rightarrow \text{V. Flip (upside down)}$$

Graph each function and state the domain, range, y-intercept, and asymptote for each.

$$f(x) = 2^x$$

$$g(x) = 2^{x+2} - 6$$



Domain: $(-\infty, \infty)$

Range: $(-6, \infty)$

y-int: $(0, -2)$

★ Plug 0 in for x

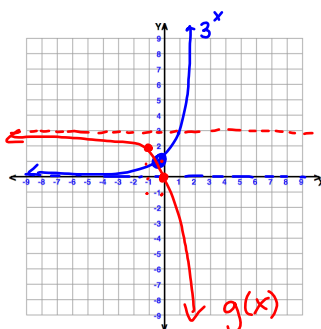
$$2^{0+2} - 6 = 2^2 - 6$$

$$= 4 - 6 = -2$$

H. Asymptote: $y = -6$

V. Flip

$$h(x) = -3^{x+1} + 3$$



y-int: $(0, 0)$

$$-(3)^{0+1} + 3 = -(3)^1 + 3$$

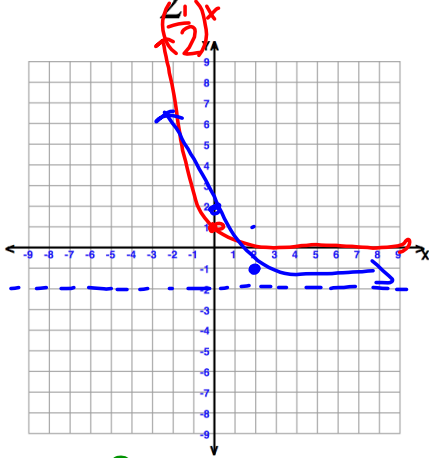
Domain: $(-\infty, \infty)$

Range: $(-\infty, 3)$

H. Asymptote: $y = 3$

Graph each function and state the domain, range, y-intercept, and asymptote for each.

$$f(x) = \frac{1}{2^{x-2}} - 2$$

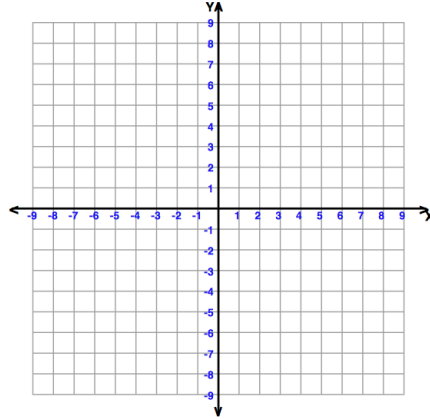


$$\left(\frac{1}{2}\right)^{0-2} - 2$$

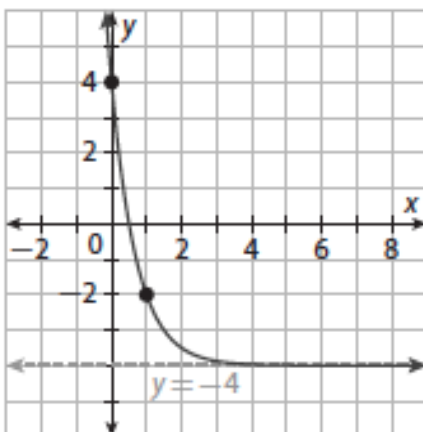
$$\left(\frac{1}{2}\right)^{-2} - 2$$

$$4 - 2 = 2$$

$$f(x) = \frac{1}{3}^{x+2} + 4$$



State the domain, range, y-intercept, asymptote, increasing, decreasing, and end behavior.



Domain:

Range:

Y-intercept:

Horizontal Asymptote:

End Behavior:

