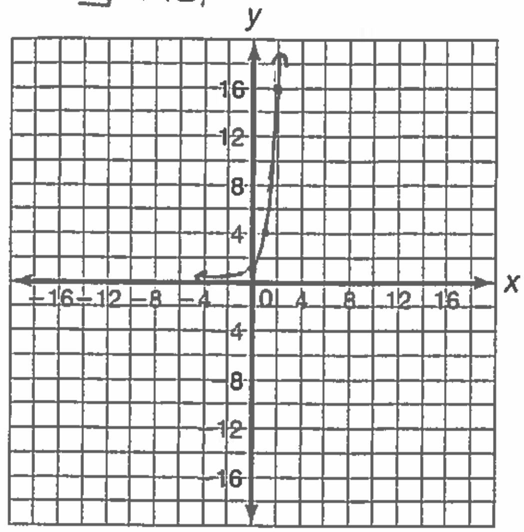
Algebra 1: 5.2 (Part 2 HW) Name Answer Key

Complete the table and sketch the graph for each of the following functions. Then determine the x-intercept(s), y-intercepts, asymptotes, domain, range, and interval(s) if increase/decrease.

1. $f(x) = 4^x$ #s greater than 1 will result in an increasing fnc.

x	f(x)
−2	$4^{-2} = \frac{1}{16}$
−1	$4^{-1} = \frac{1}{4}$
0	$4^0 = 1$
1	$4^1 = 4$
2	$4^2 = 16$



x-intercept: None

y-intercept: (0, 1)

asymptote: y = 0

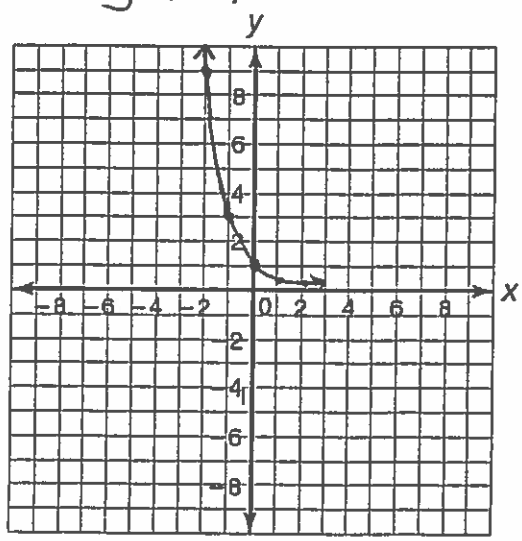
domain: All real #s

range: y > 0

interval(s) of increase/ decrease:

2. $f(x) = \frac{1}{3}^x$ #s between 0 and 1 will result in a decreasing fnc.

x	f(x)
−2	$\left(\frac{1}{3}\right)^{-2} = 9$
−1	$\left(\frac{1}{3}\right)^{-1} = 3$
0	$\left(\frac{1}{3}\right)^0 = 1$
1	$\left(\frac{1}{3}\right)^1 = \frac{1}{3}$
2	$\left(\frac{1}{3}\right)^2 = \frac{1}{9}$



x-intercept: None

y-intercept: (0, 1)

asymptote: y = 0

domain: All real #s

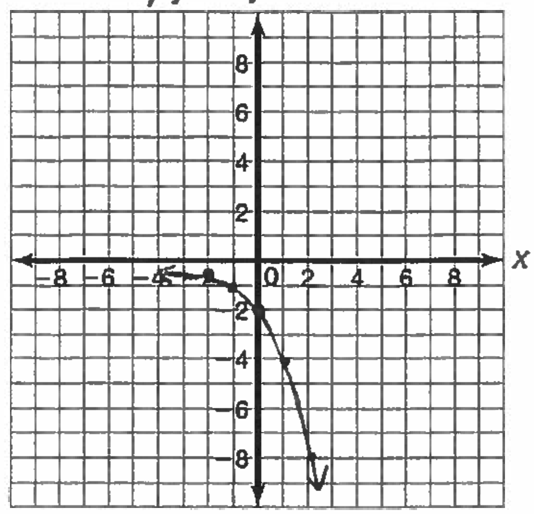
range: y > 0

interval(s) of increase/decrease:

Since 2^x is multiplied by a negative #, the fnc is decreasing (It goes the opposite way)

3. $f(x) = -2 \cdot 2^x$

x	$f(x)$
-2	$-2 \cdot 2^{-2} = -\frac{1}{2}$
-1	$-2 \cdot 2^{-1} = -1$
0	$-2 \cdot 2^{0} = -2$
1	$-2 \cdot 2^{1} = -4$
2	$-2 \cdot 2^{2} = -8$



x–intercept: None

domain: All real #s

y–intercept: (0, -2)

range: $y < 0$

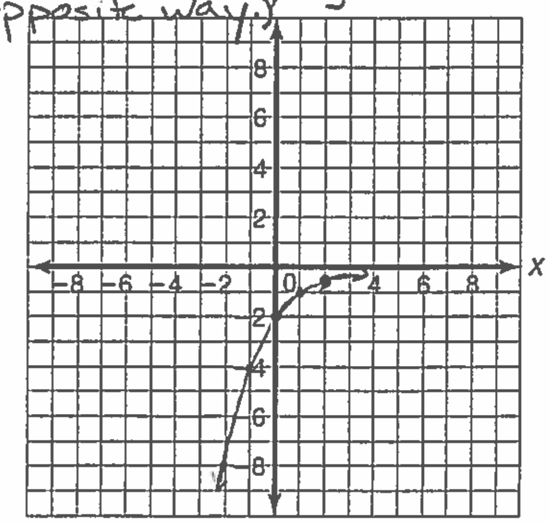
asymptote: $y = 0$

interval(s) of increase/decrease:

Since $\left(\frac{1}{2}\right)^x$ is multiplied by a negative #, the fnc is increasing (It goes the opposite way.)

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

x	$f(x)$
-2	$-2\left(\frac{1}{2}\right)^{-2} = -8$
-1	$-2\left(\frac{1}{2}\right)^{-1} = -4$
0	$-2\left(\frac{1}{2}\right)^{0} = -2$
1	$-2\left(\frac{1}{2}\right)^{1} = -1$
2	$-2\left(\frac{1}{2}\right)^{2} = -\frac{1}{2}$



x–intercept: None

domain: All real #s

y–intercept: (0, -2)

range: $y < 0$

asymptote: $y = 0$

interval(s) of increase/decrease: