AA PREP: GRAPHING EXPONENTIAL FUNCTIONS WITH TRANSFORMATIONS

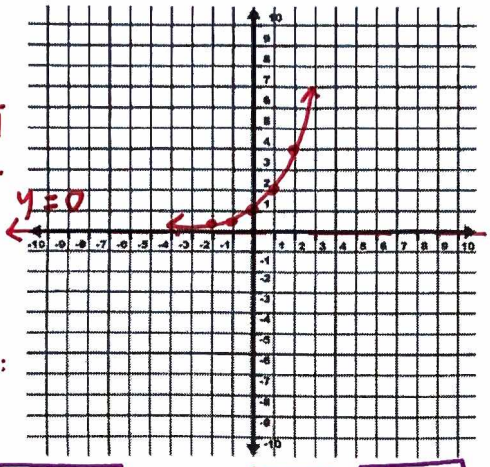
Graph the exponential parent function. Then, graph each of the following exponential functions using transformations. State domain and range.

1. $y = 2^x$

x	y
-2	$2^{-2} = \frac{1}{4}$
-1	$2^{-1} = \frac{1}{2}$
0	$2^0 = 1$
1	$2^1 = 2$
2	$2^2 = 4$

y=0

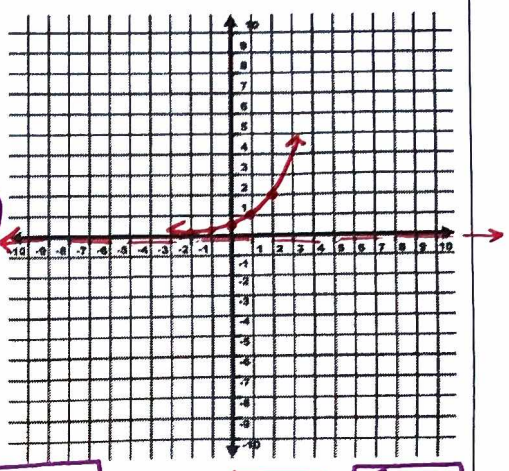
H ASYMPTOTE: $y = 0$



Domain: $\mathbb{R}$ $(-\infty, \infty)$ Range: $y > 0$ $(0, \infty)$

2. $g(x) = \frac{1}{2} \cdot 2^x$

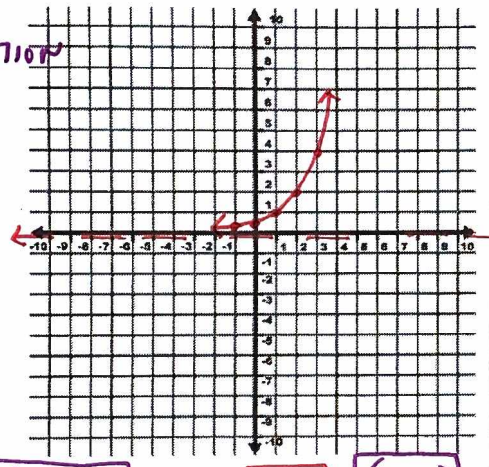
V COMP $\times \frac{1}{2}$ (y-VALUES $\times \frac{1}{2}$)



Domain: $\mathbb{R}$ $(-\infty, \infty)$ Range: $y > 0$ $(0, \infty)$

3. $f(x) = 2^{x-1}$

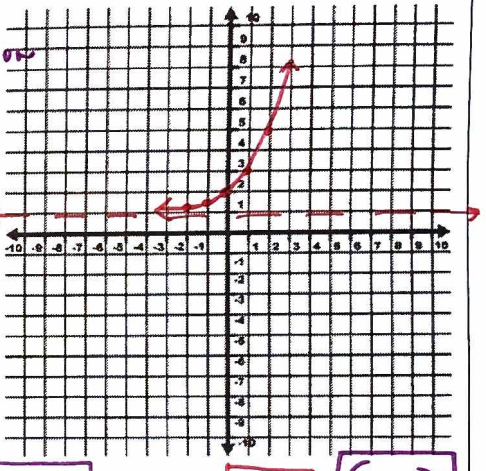
H TRANSLATION 1 (R)



Domain: $\mathbb{R}$ $(-\infty, \infty)$ Range: $y > 0$ $(0, \infty)$

4. $g(x) = 2^x + 1$

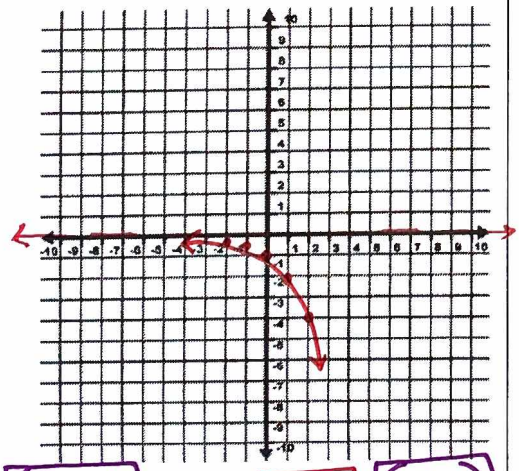
V TRANSLATION 1 (↑)



Domain: $\mathbb{R}$ $(-\infty, \infty)$ Range: $y > 1$ $(1, \infty)$

5. $y = -2^x$

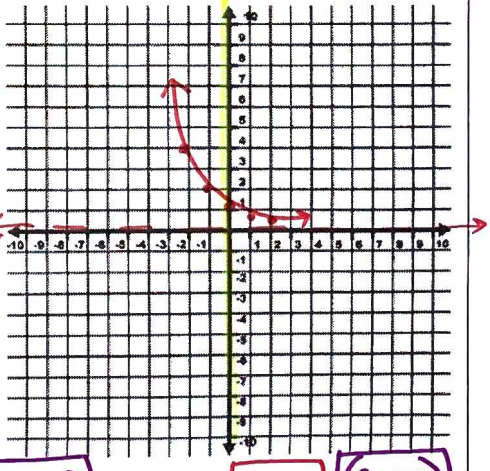
REFLECTS OVER X-AXIS



Domain: $\mathbb{R}$ $(-\infty, \infty)$ Range: $y < 0$ $(-\infty, 0)$

6. $f(x) = 2^{-x}$

REFLECTS OVER Y-AXIS



Domain: $\mathbb{R}$ $(-\infty, \infty)$ Range: $y > 0$ $(0, \infty)$