Exponential Function Transformations
Guided Notes

Name_____

The function $f(x) = ab^x$

- is stretched vertically by a factor of a if $|a| > 1$.
- is compressed vertically by a factor of a if $|a| < 1$.
- has a y-intercept is $(0, a)$.
- has a horizontal asymptote of $y = 0$, range of $(0, \infty)$, and domain of $(-\infty, \infty)$ which are all unchanged from the parent function.

The function $f(x) = -b^x$

- reflects the parent function $f(x) = b^x$ about the x-axis.
- has a y-intercept of $(0, -1)$.
- has a range of $(-\infty, 0)$.
- has a horizontal asymptote of $y = 0$ and domain of $(-\infty, \infty)$ which are unchanged from the parent function.

Write the parent function. Then describe the transformation for the following exponential functions.

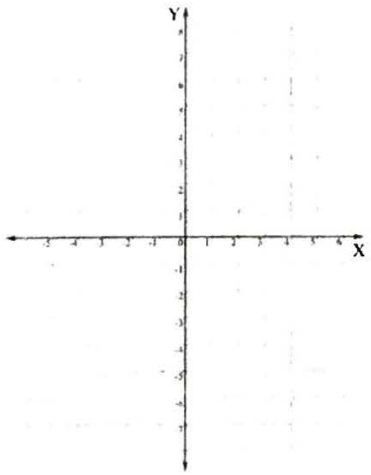
1) $y = -3 \cdot 2^x$ _____

2) $y = (\frac{1}{4})5^x$ _____

3) $y = -8^x$ _____

Sketch a graph of $y = (4)\frac{1}{2}^x$ State the domain, range, y-intercept and asymptote.

x	y



Domain_____

Range _____

Y-Intercept _____

Asymptote _____