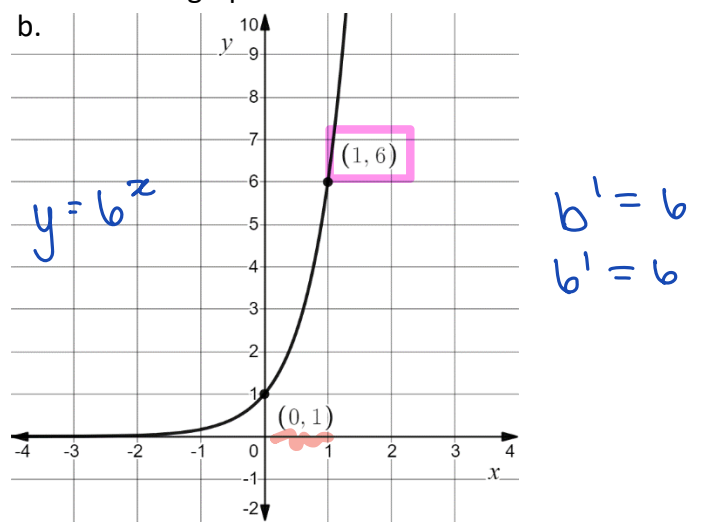
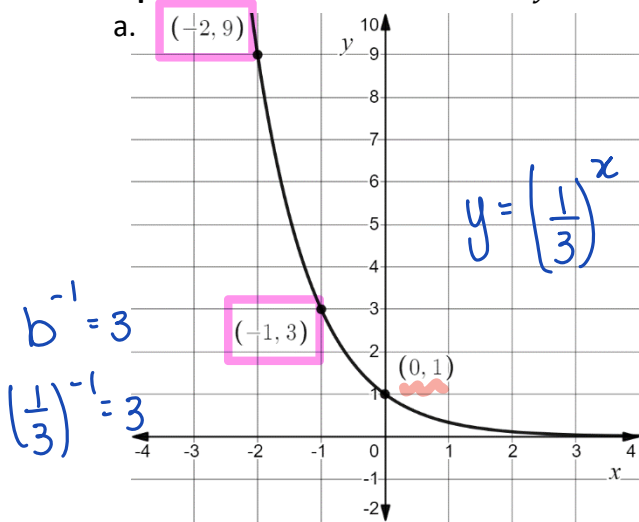


Name: _____

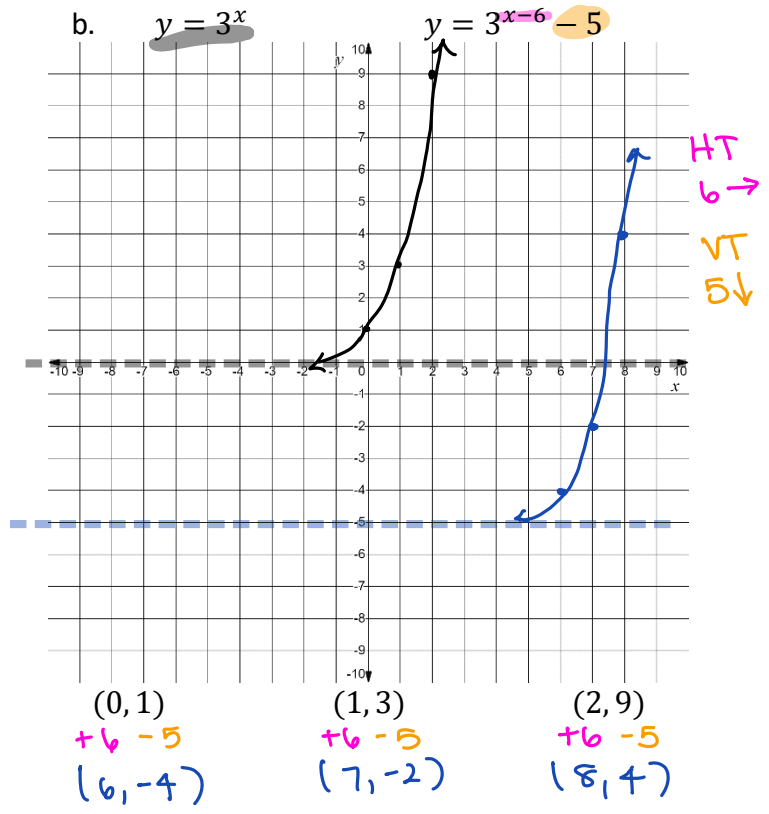
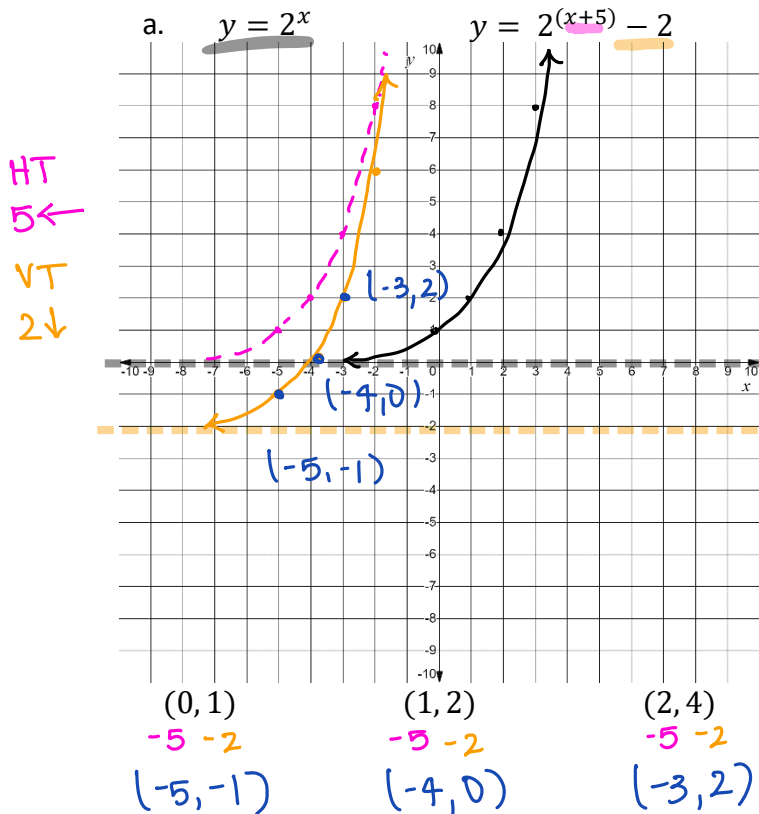
Date: _____

Learning Goal 7.1	Applying one or more transformations to an exponential function, including translations, stretches and reflections.
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Example What function in the form $y = b^x$ can be used to describe the graph shown?



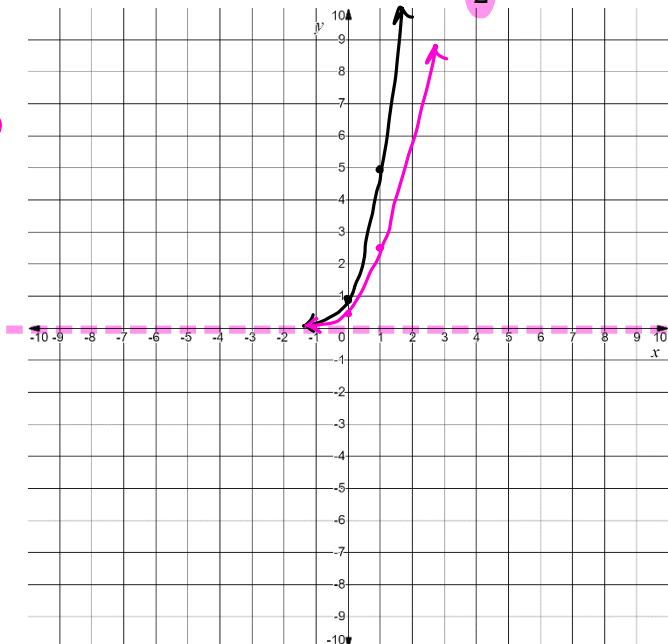
Example Sketch each base function, then each of the following transformations, without using technology. Identify the transformed values of the given coordinates.



c. $y = 5^x$

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

VS
BAFO
 $\frac{1}{2}$



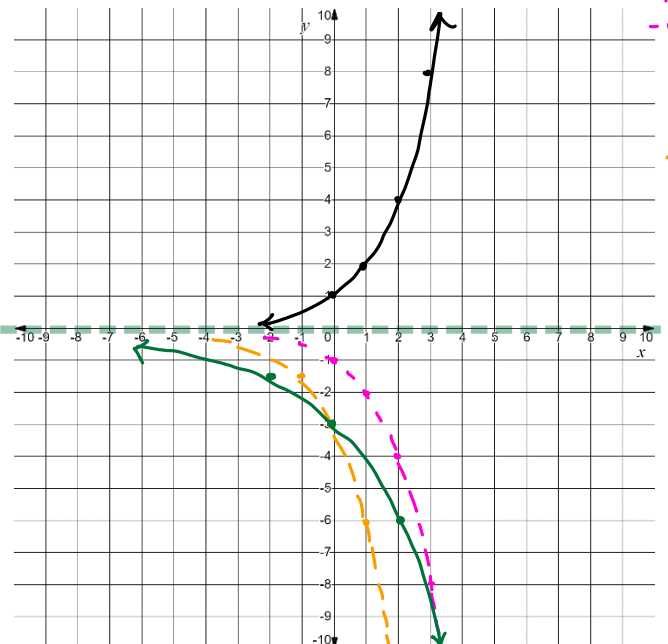
(0, 1) $\div 2$ $(0, \frac{1}{2})$
 (1, 5) $\div 2$ $(1, \frac{5}{2})$
 (2, 25) $\div 2$ $(2, \frac{25}{2})$

d. $y = 2^x$

$y = -3(2)^{\frac{x}{2}}$

vertical
Reflection
- over the
x-axis

VS
BAFO
3
HS
BAFO
2



(0, 1) (1, 2) (2, 4)

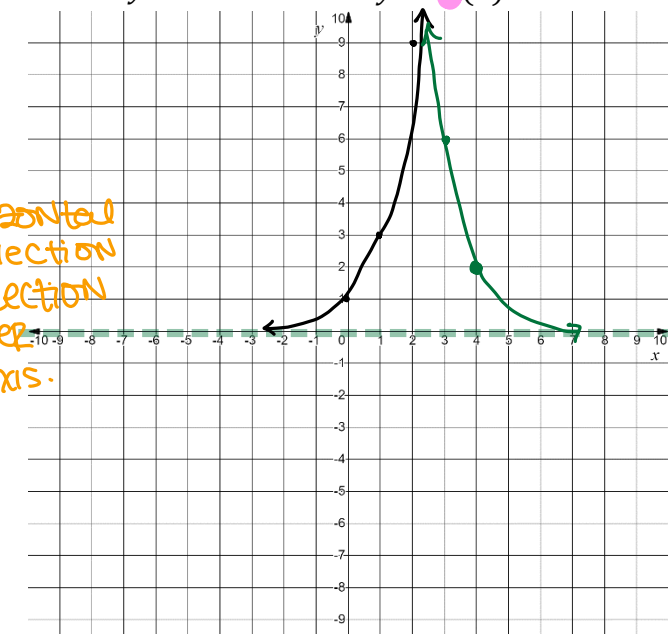
e. $y = 3^x$

$y = 2(3)^{-(x-4)}$

VS
BAFO
2

- Horizontal
Reflection
- Reflection
over
y-axis.

HT
4 →



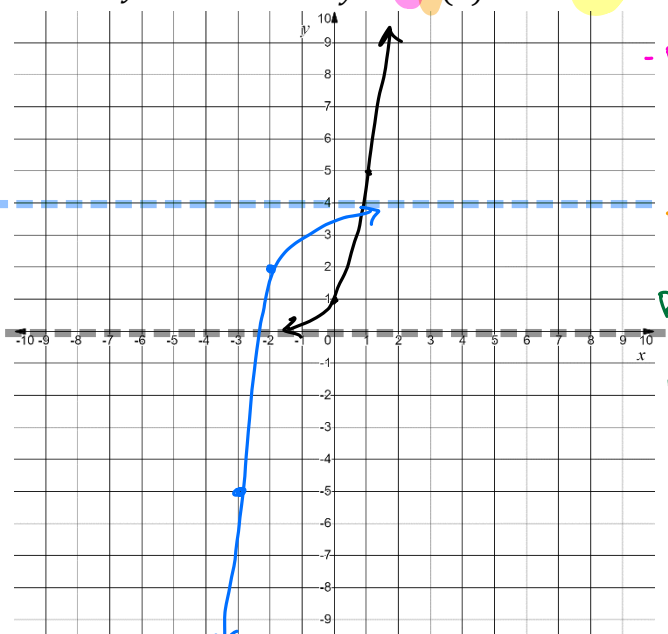
(0, 1) $x-1 \times 2$ $(0, 2)$ $+4$
 (1, 3) $x-1 \times 2$ $(-1, 6)$ $+4$
 (2, 9) $x-1 \times 2$ $(-2, 18)$ $+4$

f. $y = 5^x$

$y = -2(5)^{-(x+2)} + 4$

- Reflect
over
x-axis

VS
BAFO
2
Reflect
over
y-axis
HT
2 ←
VT
4 ↑



(0, 1) $x-1 \times x-2$ $(0, -2)$ $-2 \quad +4$
 (1, 5) $x-1 \times x-2$ $(-1, -10)$ $-2 \quad +4$
 (2, 25) $x-1 \times x-2$ $(-2, -50)$ $-2 \quad +4$

Assignment

(4, 2)

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(2, 18)

Quiz Next Day!

(-2, 2)

(-3, -6)

(-4, -46)