Name: Date: Period:

Practice Worksheet: Graphing Rational Functions Using Transformations

Graph the rational function including the asymptotes and a set of guide points from the slope.

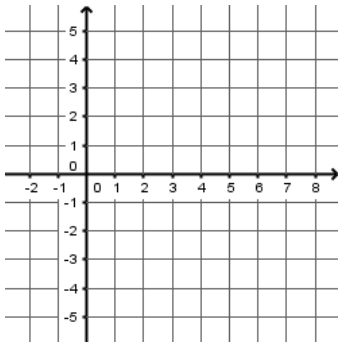
1] $y = \frac{1}{x-3}$

H.A. at y = _____

V.A. at x = _____

a = ____

Use a to find the guide points:
(____, ____) and (____, ____)



Domain:

Range:

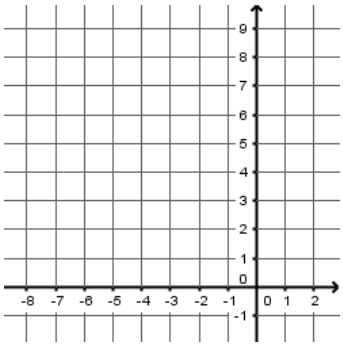
2] $y = \frac{-1}{x+3} + 5$

H.A. at y = _____

V.A. at x = _____

a = ____

Use a to find the guide points:
(____, ____) and (____, ____)



Domain:

Range:

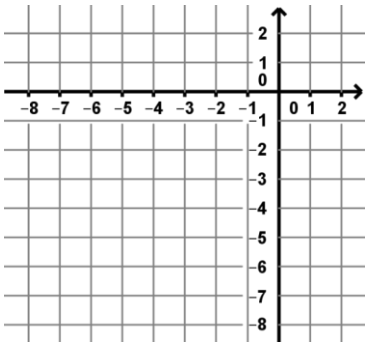
3] $y = \frac{2}{x+1} - 3$

H.A. at y = _____

V.A. at x = _____

a = ____

Use a to find the guide points:
(____, ____) and (____, ____)



Domain:

Range:

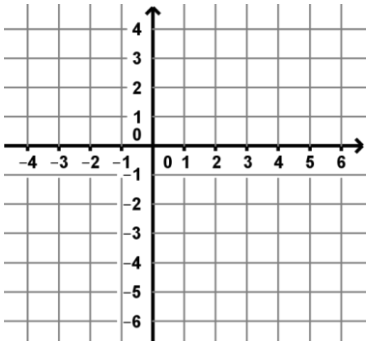
4] $y = \frac{-2}{x-2} - 1$

H.A. at y = _____

V.A. at x = _____

a = ____

Use a to find the guide points:
(____, ____) and (____, ____)



Domain:

Range:

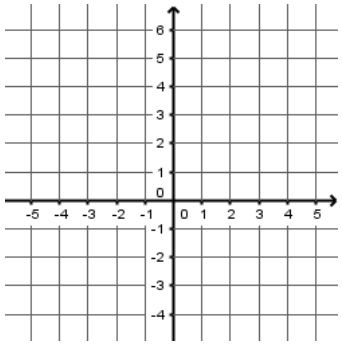
5] $y = \frac{3}{x} + 1$

H.A. at y = _____

V.A. at x = _____

a = ____

Use a to find the guide points:
(____, ____) and (____, ____)



Domain:

Range:

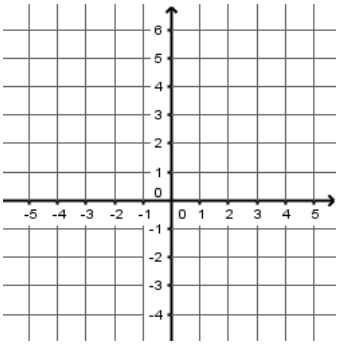
6] $y = \frac{-2}{x+2} + 3$

H.A. at y = _____

V.A. at x = _____

a = ____

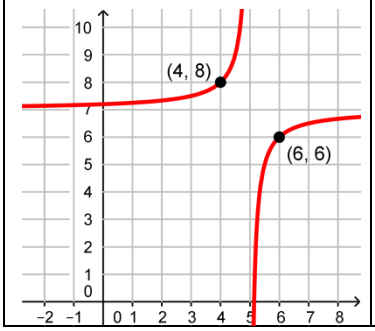
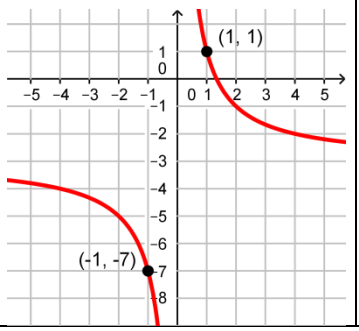
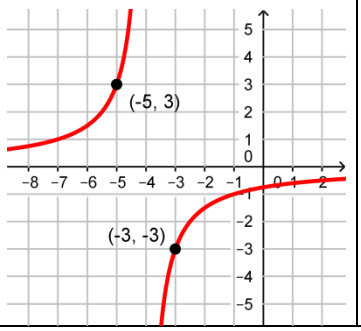
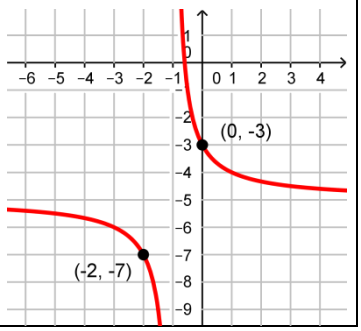
Use a to find the guide points:
(____, ____) and (____, ____)



Domain:

Range:

Write the equation of the rational function.

7]	8]	9]	10]
			

Describe each graph as compared to the parent graph $y = \frac{1}{x}$.

11] $y = \frac{-2}{x-7} + 5$	12] $y = \frac{7}{x+2} - 4$
The graph of this _____ function has been translated _____ five units and translated _____ units to the _____. It has been _____ in the x-axis. The graph is _____ from left to right. The function has a domain of _____ and a range of _____.	The graph of this _____ function has been translated _____ four units and translated _____ units to the _____. It has been vertically stretched by a factor of _____. The graph is _____ from left to right. The function has a domain of _____ and a range of _____.

Write the equation that meets the given description. Show all work.

13] A rational function that has a domain of $x \neq -2$ and $y \neq 0$ and passes through $\left(-4, \frac{1}{2}\right)$.	14] A rational function that has a domain of $x \neq 1$ and $y \neq 4$ and passes through $(-3,3)$.	15] A rational function that has a domain of $x \neq -4$ and $y \neq -9$ and passes through $(-2, -8)$.