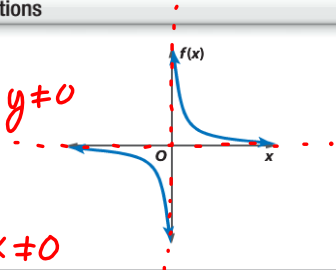


8-3 Graphing Reciprocal Functions

- determine properties of reciprocal functions
- graph transformations of reciprocal functions
- A.CED.2, F.BF.3

reciprocal function: an equation of the form $f(x) = \frac{a}{x}$

KeyConcept Parent Function of Reciprocal Functions	
Parent function:	
Type of graph:	
Domain and range:	$d: x \neq 0, r: y \neq 0$
Asymptotes:	VA \uparrow HA
Intercepts:	
Not defined:	undefined: $x \neq 0$

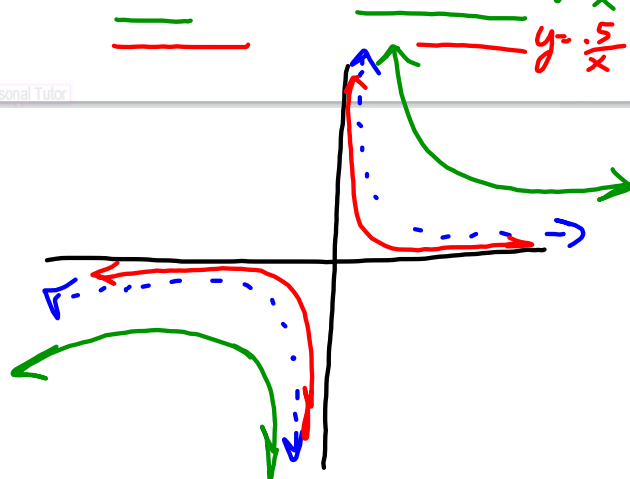
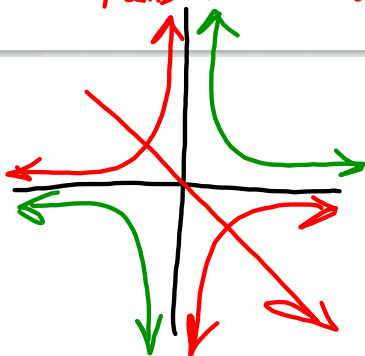


asymptote: a line that a graph approaches and usually never reaches.

- V.A.: will never cross.

- H.A.: it may cross.

KeyConcept Transformations of Reciprocal Functions	
$f(x) = \frac{a}{x-h} + k$	
<p>h – Horizontal Translation</p> <p>$y = \frac{1}{x-3}$ (right 3)</p> <p>$y = \frac{1}{x+1}$ (left 1)</p> <p>The vertical asymptote is at _____</p>	<p>k – Vertical Translation</p> <p>$y = \frac{1}{x} + 2$ (up 2)</p> <p>$y = \frac{1}{x} - 5$ (down 5)</p> <p>The horizontal asymptote is at _____</p>
a – Orientation and Shape	
<p>$a > 0$, rises to the right</p> <p>_____ falls to the right</p>	<p>$y = \frac{2}{x}$</p> <p>_____ $y = \frac{.5}{x}$</p>



Graph the following functions. Then state the domain and range.

$$1. f(x) = -\frac{1}{x+1} + 3$$

$a = -1$

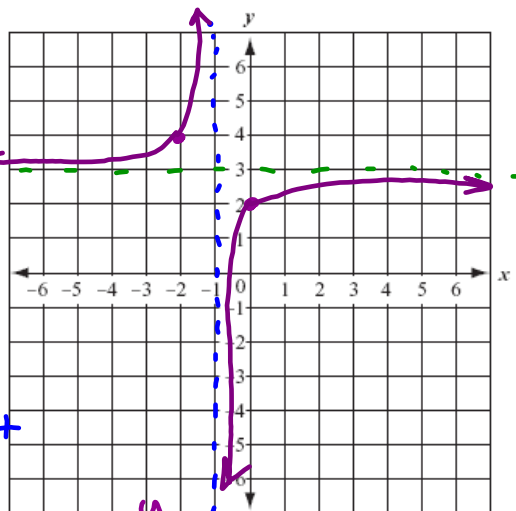
Reflected over the x-axis (falls)

$h = -1$ translates 1 unit left

V.A.: $x = -1$

$k = 3$, translates 3 units up

H.A.: $y = 3$



x	y
-2	4
-1	1
0	2

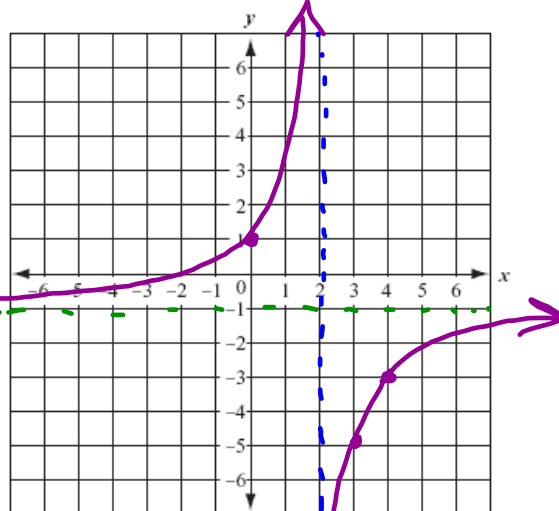
d: $x \neq -1$
r: $y \neq 3$

Graph the following functions. Then state the domain and range.

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

V.A.: $x = 2$

H.A.: $y = -1$



x	y
2	5
3	-5
4	-3

d: $x \neq 2$
r: $y \neq -1$

8-3 Worksheet

Attachments

9-2HW.notebook