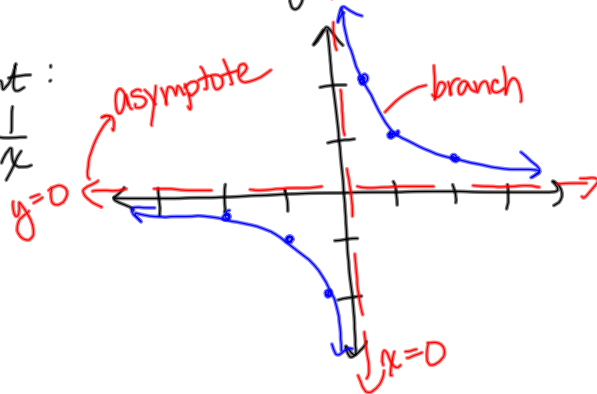


Sec. 8.2 The Reciprocal Function Family

General Form:  $y = \frac{a}{x-h} + k, x \neq h$

parent:  
 $y = \frac{1}{x}$



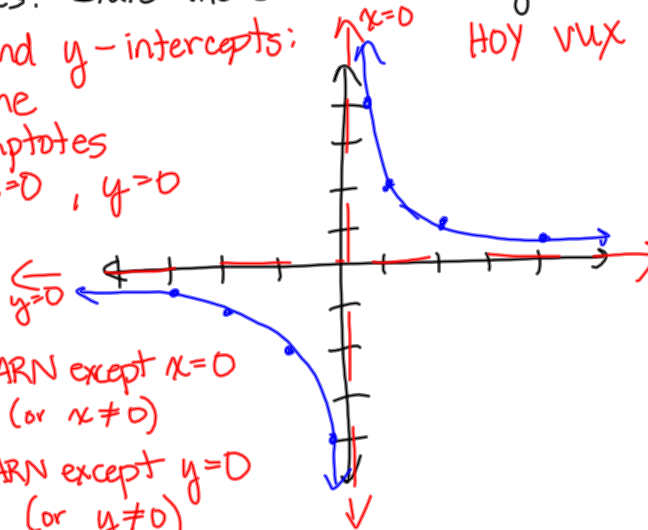
x	y
1	1
2	1/2
1/2	2
-1	-1
-2	-1/2
-1/2	-2

Graph  $y = \frac{2}{x} \neq 0$  Identify x- and y- intercepts and the asymptotes. State the domain and range.

x- and y- intercepts: none  
asymptotes:  $x=0, y=0$

x	y
1	2
2	1
1/2	4
4	1/2
-1	-2
-2	-1
-1/2	-4
-4	-1/2

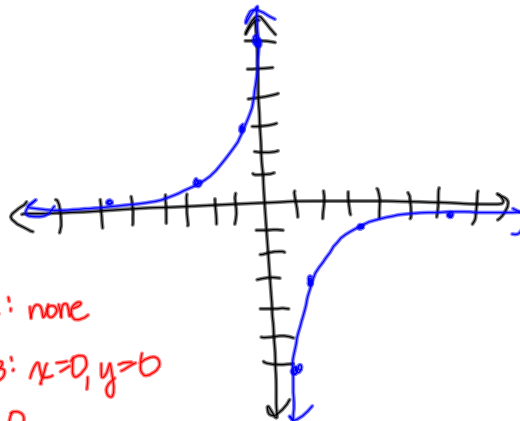
D: ARN except  $x=0$   
(or  $x \neq 0$ )  
R: ARN except  $y=0$   
(or  $y \neq 0$ )



b.)  $y = -\frac{3}{x}$

x	y
1	-3
3	-1
1/2	-6
6	-1/2
-1	3
-3	1
-1/2	6
-6	1/2

x, y- ints: none  
asymptotes:  $x=0, y=0$   
D:  $x \neq 0$   
R:  $y \neq 0$



c.)  $y = \frac{1}{x-2} + 3 \neq 3$

$h=2 \rightarrow x=2$

$k=3 \rightarrow y=3$

$\frac{1}{x}$

x	y
1	1
2	$\frac{1}{2}$
$\frac{1}{2}$	2
-1	-1
-2	$-\frac{1}{2}$
$-\frac{1}{2}$	-2

$(1, 1) + (2, 3) = (3, 4)$   
 $(2, \frac{1}{2}) + (2, 3) = (2, 3)$   
 $(\frac{1}{2}, 2) + (2, 3) = (2, 3)$   
 $(2, 3) \rightarrow (0, 2\frac{1}{2})$

