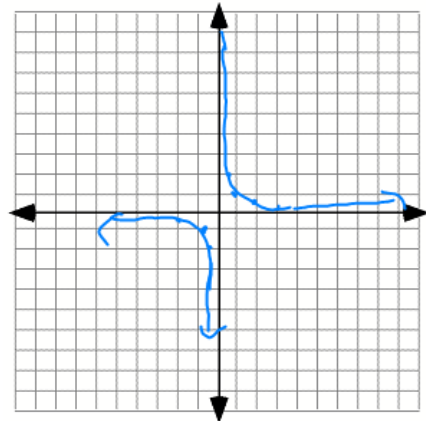


8.2 Graphing Simple Rational Functions

Parent Function of Simple Rational

Functions: $f(x) = \frac{1}{x}$

Graph: $f(x) = \frac{1}{x}$



X	Y
0	—
1	1
2	$\frac{1}{2}$
$\frac{1}{2}$	2
-1	-1
-2	$-\frac{1}{2}$
$-\frac{1}{2}$	-2

undefined

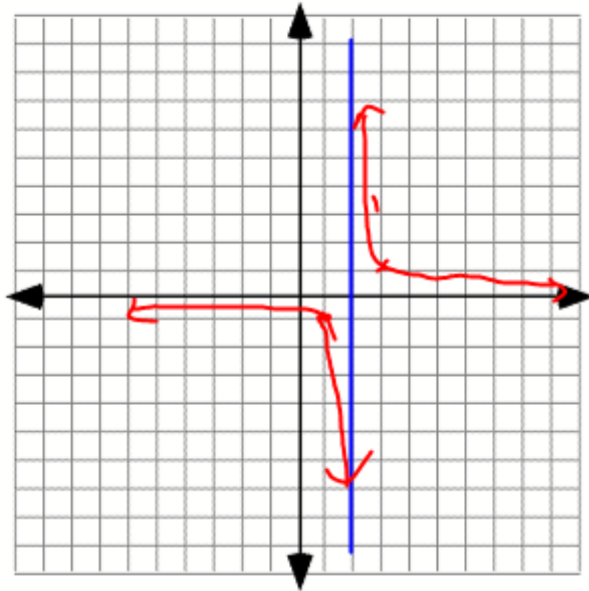
VA: $x = 0$

HA: $y = 0$

Domain: $x \neq 0$

Range: $y \neq 0$

Graph: $y = \frac{1}{x-2} \rightarrow 2$



VA: $x = 2$

HA: $y = 0$

Domain: $x \neq 2$

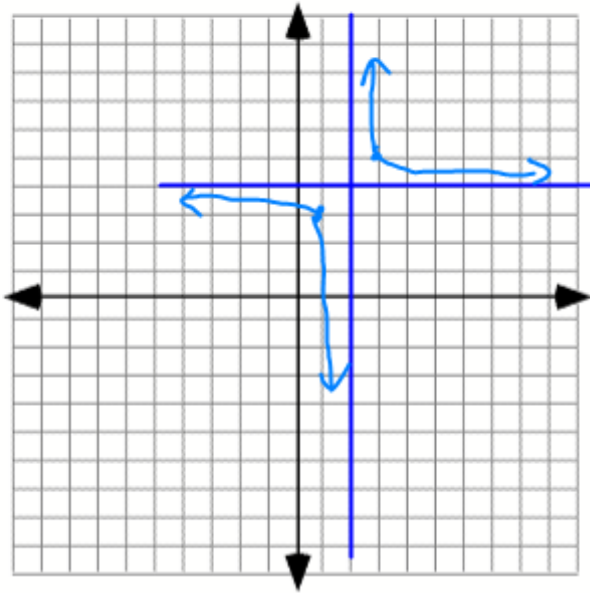
Range: $y \neq 0$

x	y
3	-1

Domain:

Graph: $y = \frac{1}{x-2} + 4$

$\rightarrow 2$ $\uparrow 4$



VA: $x = 2$

HA: $y = 4$

Domain: $x \neq 2$

Range: $y \neq 4$

x	y
1	3
3	5

Graph: $y = \frac{2}{x}$

$$2\left(\frac{1}{x}\right)$$

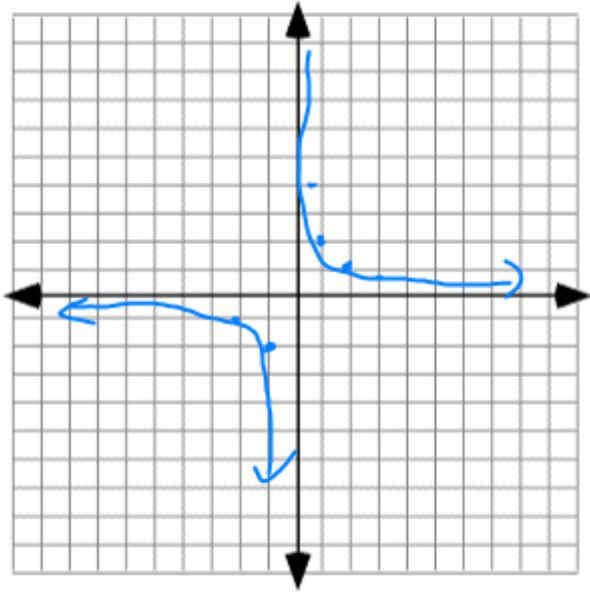
- double y-values

VA: $x = 0$

HA: $y = 0$

Domain: $x \neq 0$

Range: $y \neq 0$



parent

x	y
1/2	1/2

x	y
1	2
2	1
3	2/3

Other Rational Functions:

$$y = \frac{ax + b}{cx + d}$$

VA: what makes
den. 0

HA: $\frac{a}{c}$ $-d/c$

Domain: $x \neq -\frac{d}{c}$

Range: $y \neq \frac{a}{c}$

ex: $y = \frac{2x + 1}{4x + 8}$

VA: $4x + 8 = 0$
 $x = -2$

HA: $\frac{2}{4} = \frac{1}{2} = y$

ex: $y = \frac{2x+1}{4x-8}$

$$\frac{4x+16}{2x-2}$$

$$\frac{24}{2}$$

$$\frac{28}{4} \quad \frac{12}{-4}$$

VA: $x=1$

HA: $y=2$

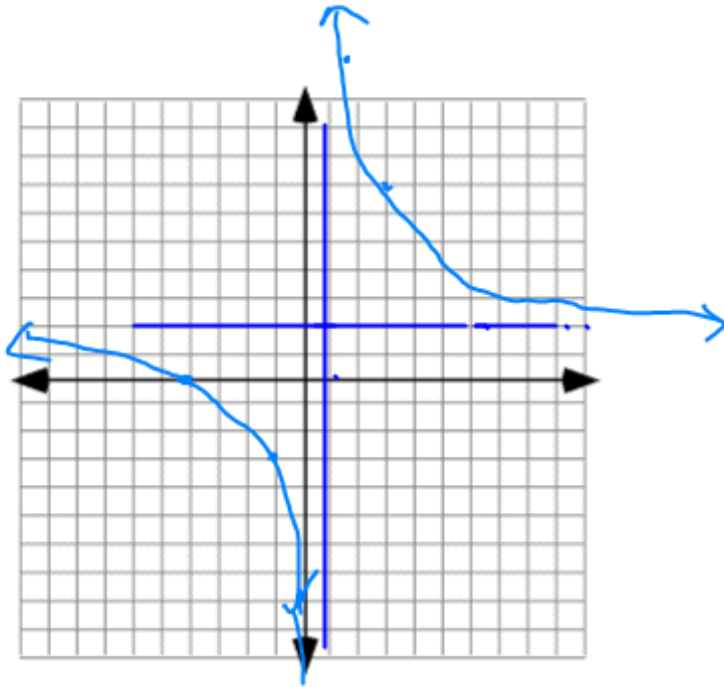
Domain: $x \neq 1$

Range: $y \neq 2$

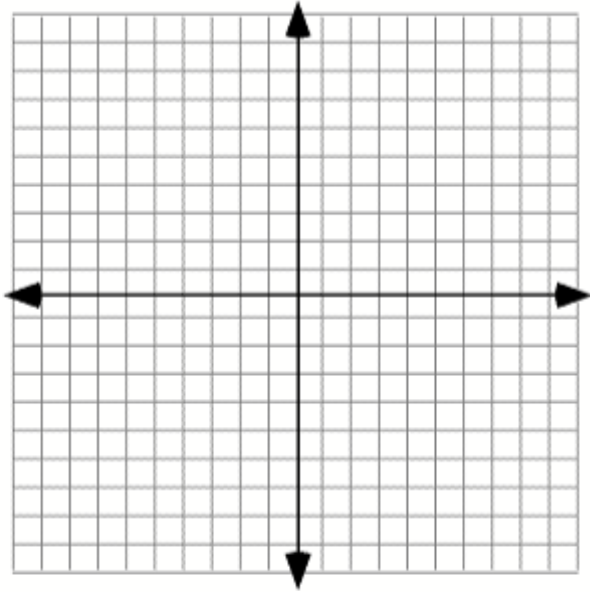
X - intercept: $y=0 (-4,0)$

$$0 = \frac{4x+16}{2x-2}$$

$$\begin{matrix} (2,12) & (3,7) \\ (0,-8) & (-1,-3) \end{matrix}$$



ex: $y = \frac{3x + 9}{x - 4}$



VA:

HA:

Domain:

Range:

X – intercept:

