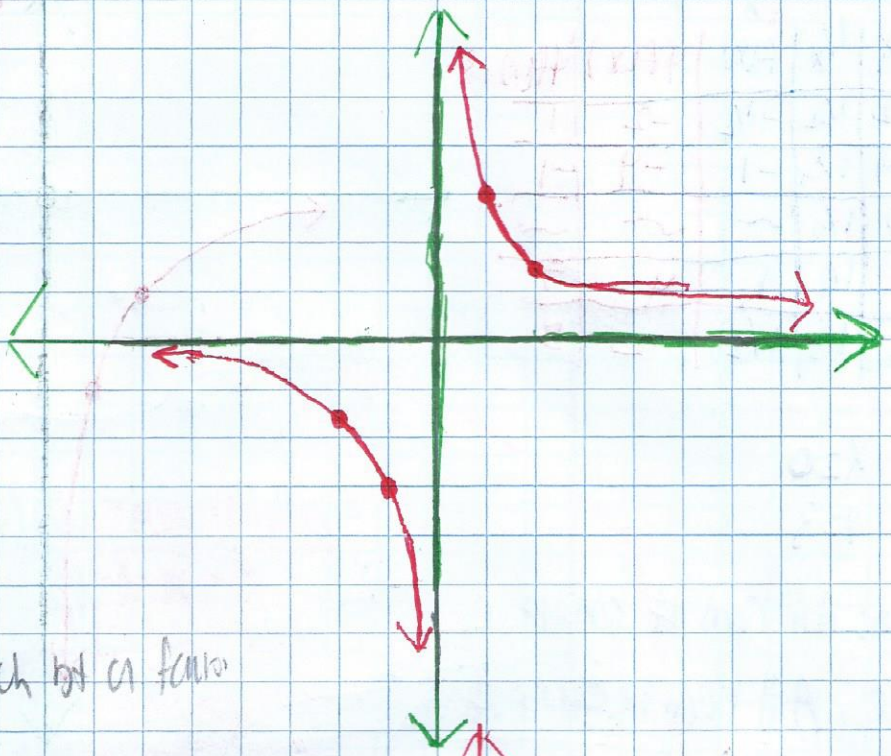
pg 370 - 371 (3, 7, 11, 13, 25, 26, 33, 34, 35 only #3)

3. $g(x) = \frac{3}{x}$

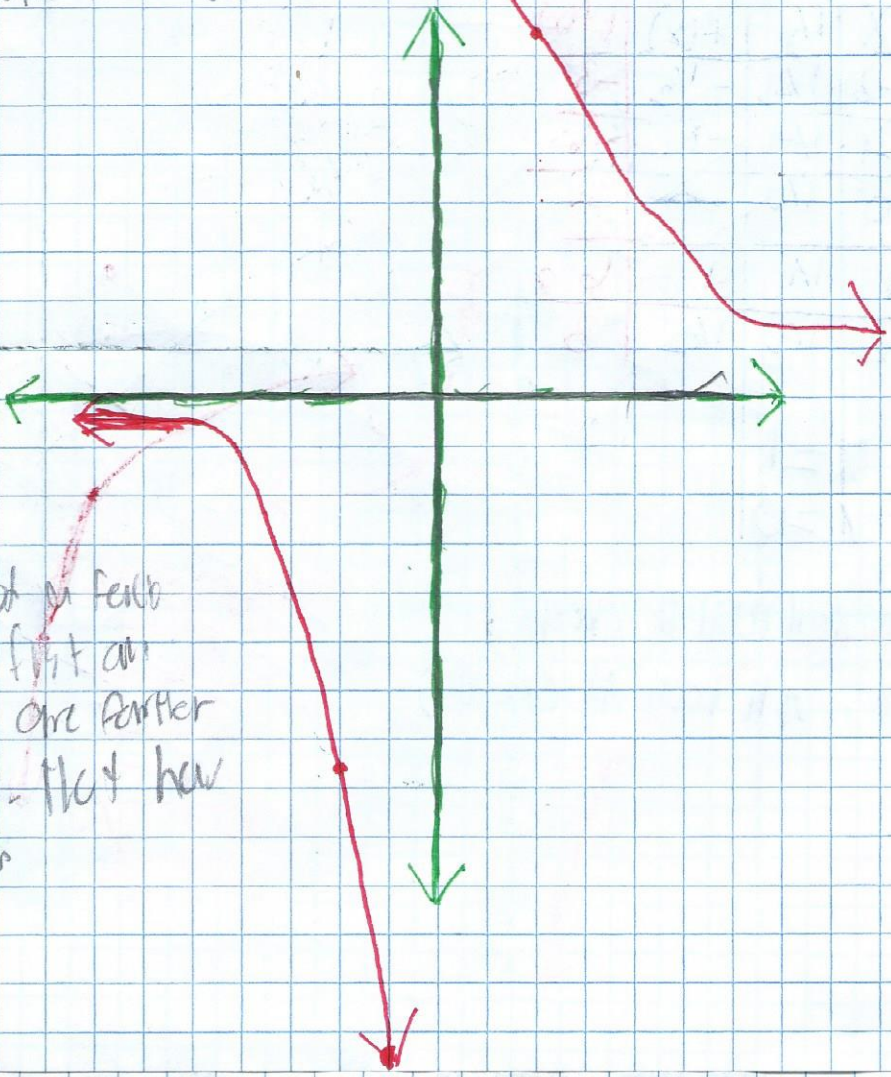
x	$\frac{1}{x}$	f(x)	3f(x)
-2	$\frac{1}{-2}$	$-\frac{1}{2}$	$-1\frac{1}{2}$
-1	$\frac{1}{-1}$	-1	-3
0	$\frac{1}{0}$	—	—
1	$\frac{1}{1}$	1	3
2	$\frac{1}{2}$	$\frac{1}{2}$	$1\frac{1}{2}$



g(x) is a vertical stretch by a factor of 3. They have the same asymptote same domain and range Both are in first and third Quadrant

7. $g(x) = \frac{15}{x}$

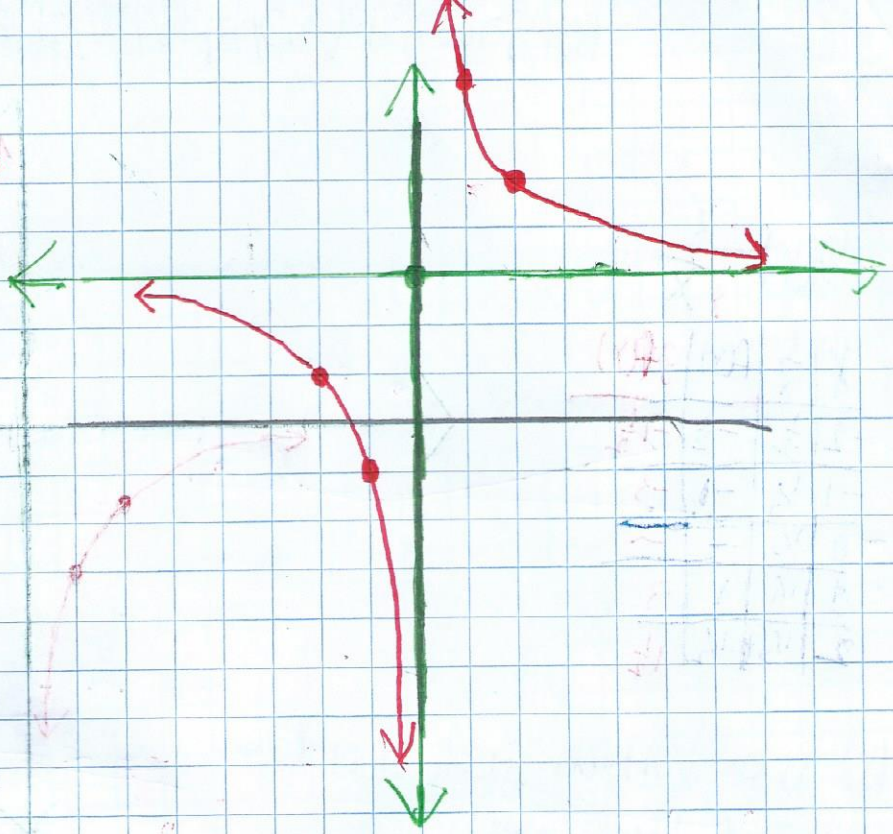
x	$\frac{1}{x}$	f(x)	15f(x)
-2	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{15}{2} = -7\frac{1}{2}$
-1	$\frac{1}{-1}$	-1	-15
0	$\frac{1}{0}$	—	—
1	$\frac{1}{1}$	1	15
2	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{15}{2} = 7\frac{1}{2}$



g(x) is a vertical Stretch by a factor of 15. The lines the first and third Quadrant they are farther from the x axis. They have the same asymptote

11 $g(x) = \frac{4}{x} + 3$

x	1/x	f(x)	4f(x)	4f(x)+3
-2	1/-2	-1/2	-2	1
-1	1/-1	-1	-4	-1
0	1/0	~	~	~
1	1/1	1	4	7
2	1/2	1/2	2	5

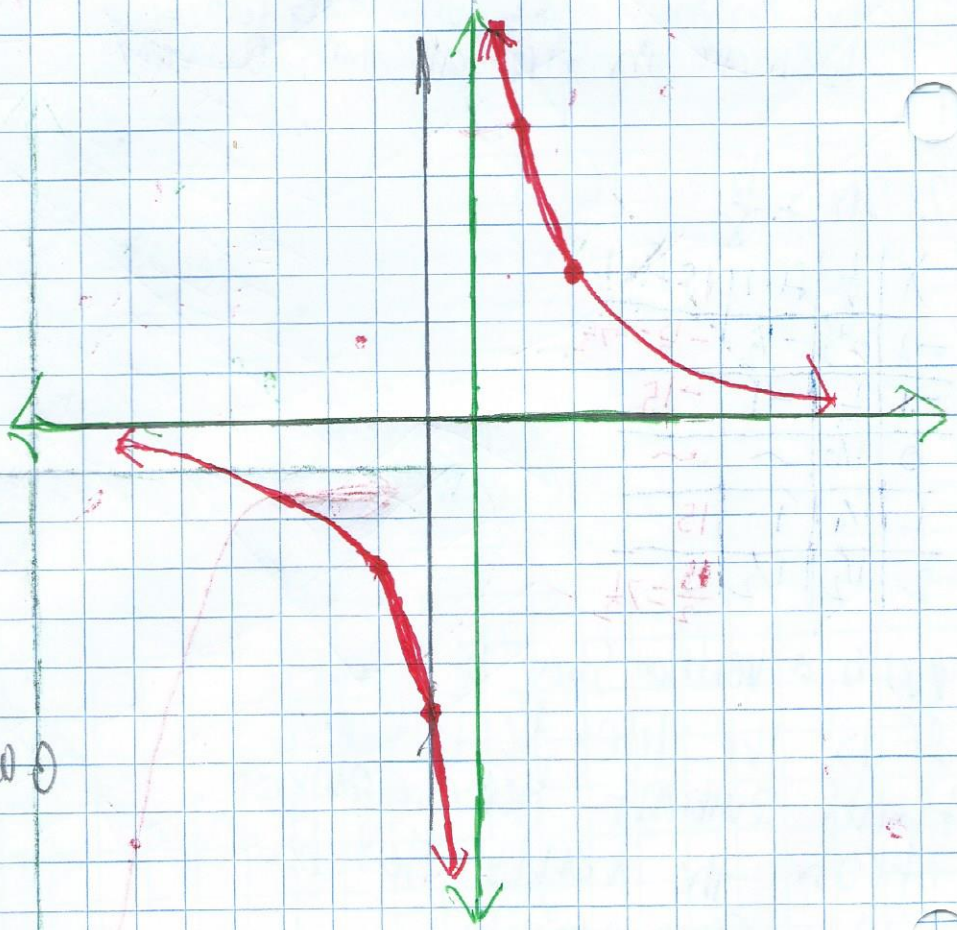


Asy: $x = 0$
$y = 3$

Domain: All real # except 0
Range: All real # except 3

13. $h(x) = \frac{6}{x-1}$

x+1	x	1/x	f(x)	6f(x)
-1	-2	1/-2	-1/2	-3
0	-1	1/-1	-1	-6
1	0	1/0	~	~
2	1	1/1	1	6
3	2	1/2	1/2	3



Asy: $x = 1$
$y = 0$

Domain: All real # except 1
Range: All real # except 0

25 $f(x) = \frac{x+4}{x-3}$

Asy: $x = \frac{3}{1}$ $y = \frac{1}{1}$

$x = 3$ $y = 1$

Domain: All real # $\neq 3$

range: All real # $\neq 1$

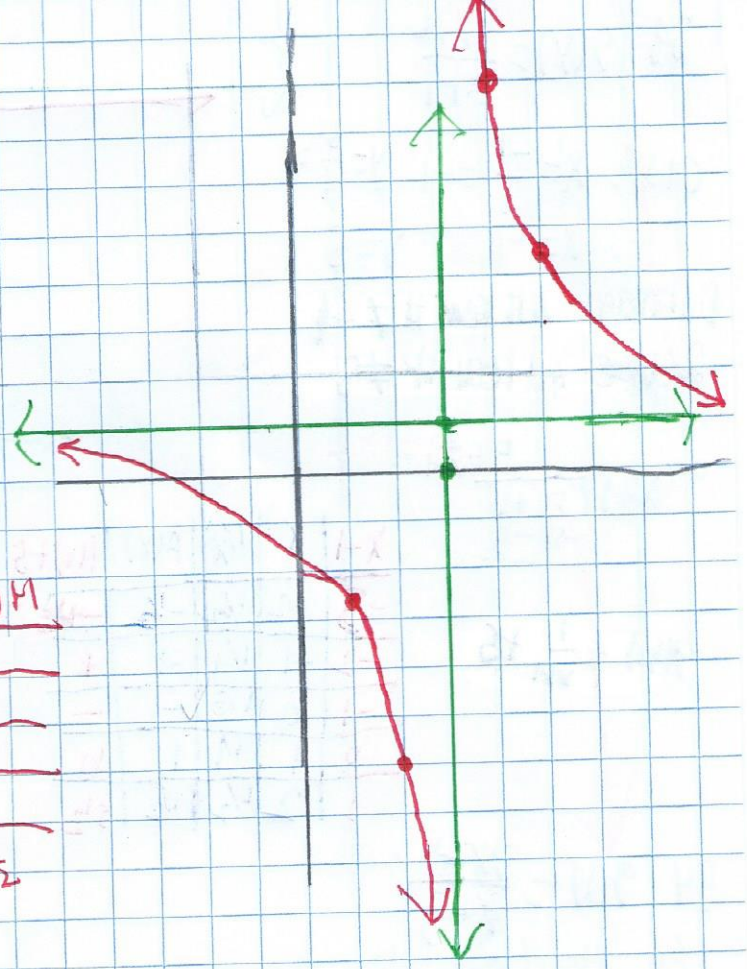
$x-3 \overline{)\, x+4}$ $1 + \frac{7}{x-3}$

$-(x-3)$

7

$g(x) = \frac{7}{x-3} + 1$

$x+3$	x	$1/x$	$f(x)$	$7f(x)$	$7f(x)+1$
1	-2	$1/-2$	$-1/2$	$-\frac{7}{2} = -3\frac{1}{2}$	$-2\frac{1}{2}$
2	-1	$1/-1$	-1	-7	-6
3	0	$1/0$	—	—	—
4	1	$1/1$	1	7	8
5	2	$1/2$	$1/2$	$\frac{7}{2} = 3\frac{1}{2}$	$4\frac{1}{2}$



26 $f(x) = \frac{x-1}{x+5}$

Asy: $x = \frac{-5}{1} = -5$ $y = \frac{1}{1} = 1$

$x = -5$ $y = 1$

Domain: All real # $\neq -5$

Range: All real # $\neq 1$

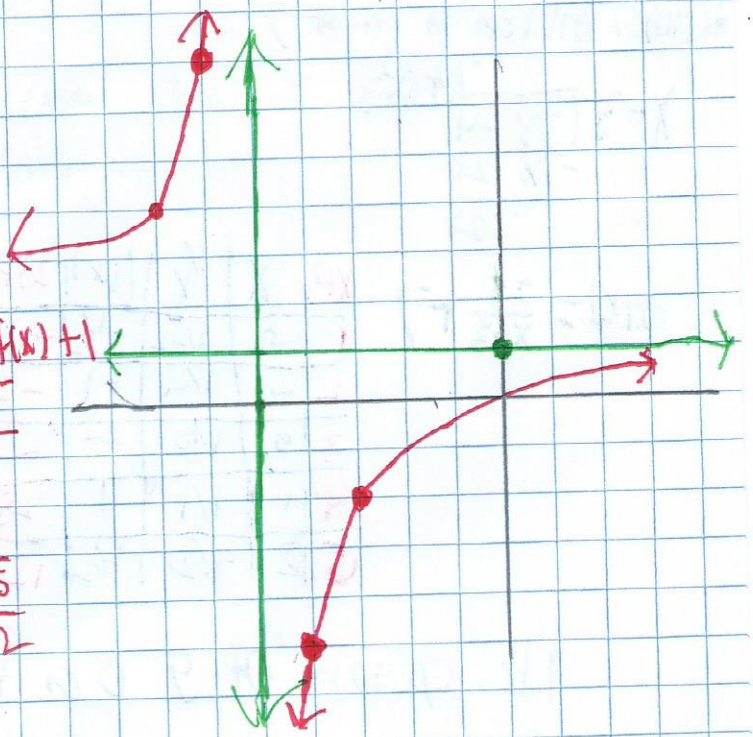
$x+5 \overline{)\, x-1}$ $1 + \frac{-6}{x+5}$

$x-5$

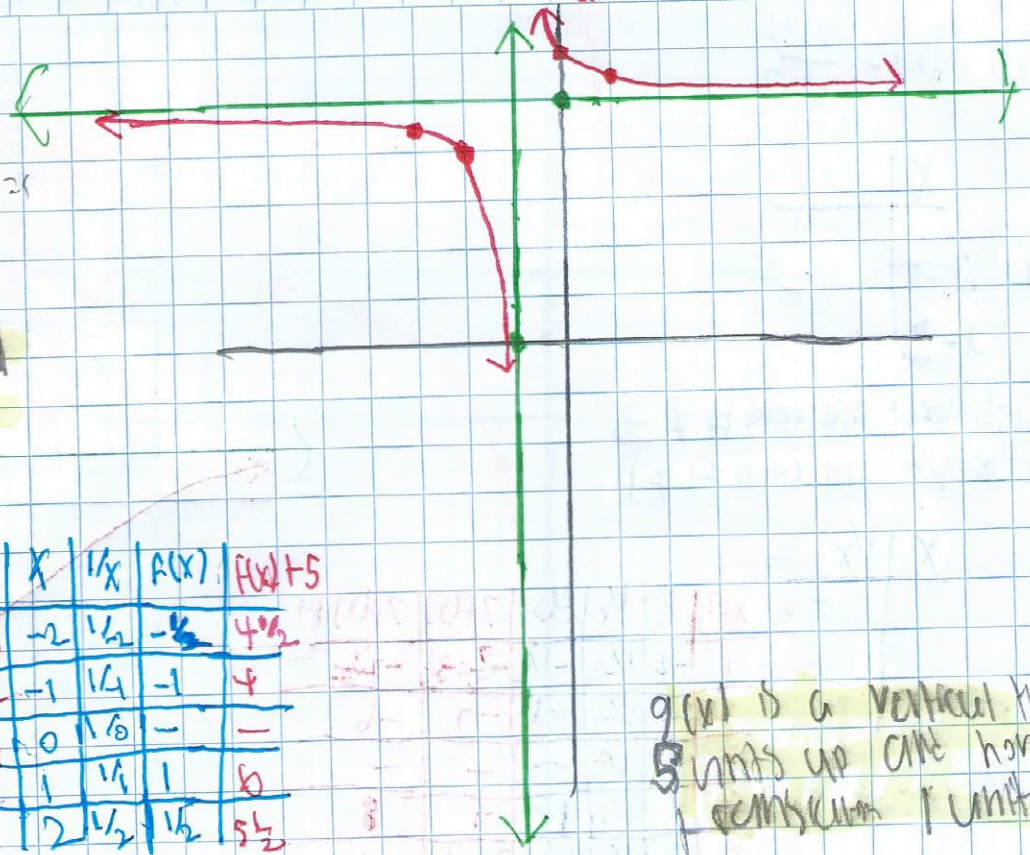
-6

$g(x) = \frac{-6}{x+5} + 1$

$x-5$	x	$1/x$	$f(x)$	$-6f(x)$	$-6f(x)+1$
-7	-2	$1/-2$	$-1/2$	3	4
-6	-1	$1/-1$	-1	6	7
-5	0	$1/0$	—	—	—
-4	1	$1/1$	1	-6	-5
-3	2	$1/2$	$1/2$	-3	-2



33 $g(x) = \frac{5x+6}{x+1}$



Asy: $x = \frac{-1}{1} = -1$ $y = \frac{5}{1} = 5$

$x = -1$ $y = 5$

Domain: All real # $\neq -1$

Range: All real # $\neq 5$

$$x+1 \overline{)\,5x+6} \quad 5 + \frac{1}{x+1}$$
$$-5x-5$$
$$1$$

$g(x) = \frac{1}{x+1} + 5$

$x-1$	x	$1/x$	$f(x)$	$f(x)+5$
-3	-2	1/2	-1/2	4 1/2
-2	-1	1/1	-1	4
-1	0	1/0	—	—
0	1	1/1	1	6
1	2	1/2	1/2	5 1/2

g(x) is a vertical trans 5 units up and horizontal translation 1 unit back

34 $g(x) = \frac{7x+4}{x-3}$

Asy: $x = \frac{3}{1} = 3$ $y = \frac{7}{1} = 7$

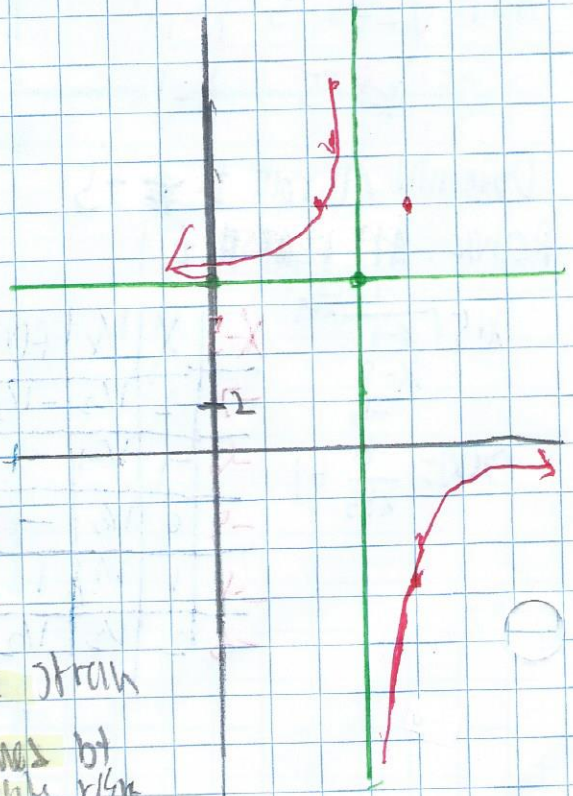
$x = 3$ $y = 7$

Domain: All real # except 3

Range: All real # except 7

$$x-3 \overline{)\,7x+4} \quad 7 + \frac{25}{x-3}$$
$$-7x+21$$
$$25$$

$g(x) = \frac{25}{x-3} + 7$



$x+3$	x	$1/x$	$f(x)$	$25f(x)$	$25f(x)+7$
1	-2	1/2	-1/2	-12 1/2	-5 1/2
2	-1	1/1	-1	-25	-18
3	0	1/0	—	—	—
4	1	1/1	1	25	32
5	2	1/2	1/2	12 1/2	19 1/2

The graph of g is a vertical stretch of a factor of 25 followed by a vertical translation 7 units up and 3 units right

37 $g(x) = \frac{x+18}{x-6}$

Asy: $x = \frac{6}{1} = 6$ $y = \frac{1}{1} = 1$

$x = 6$ $y = 1$

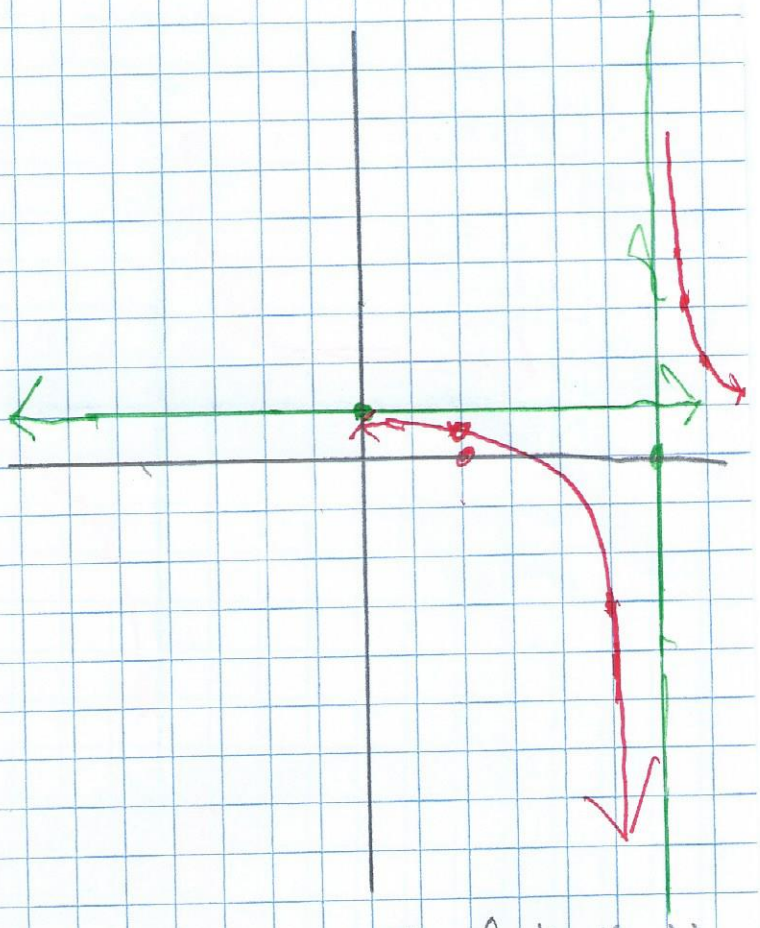
Domain: All real #s except 6

Range: All real #s except 1

$$x-6 \overline{)\, x+18 \;\; 1 + \frac{24}{x-6}}$$
$$-x+6$$
$$24$$

$g(x) = \frac{24}{x-6} + 1$

x+6	x	1/x	f(x)	24 f(x)	+1
4	-2	-1/2	-12	2	
5	-1	-1	-24	8	
6	0	undef	undef	6	
7	1	1	24	8	
8	2	1/2	8	10	



g(x) is a vertical stretch by a factor of 24 followed by a vertical translation 1 unit up and a horizontal translation 6 units right

43 $y = \frac{2}{x+4} + 7$

The vertical asymptote is $x = -4$ because the x value is always the vertical asymptote and it is