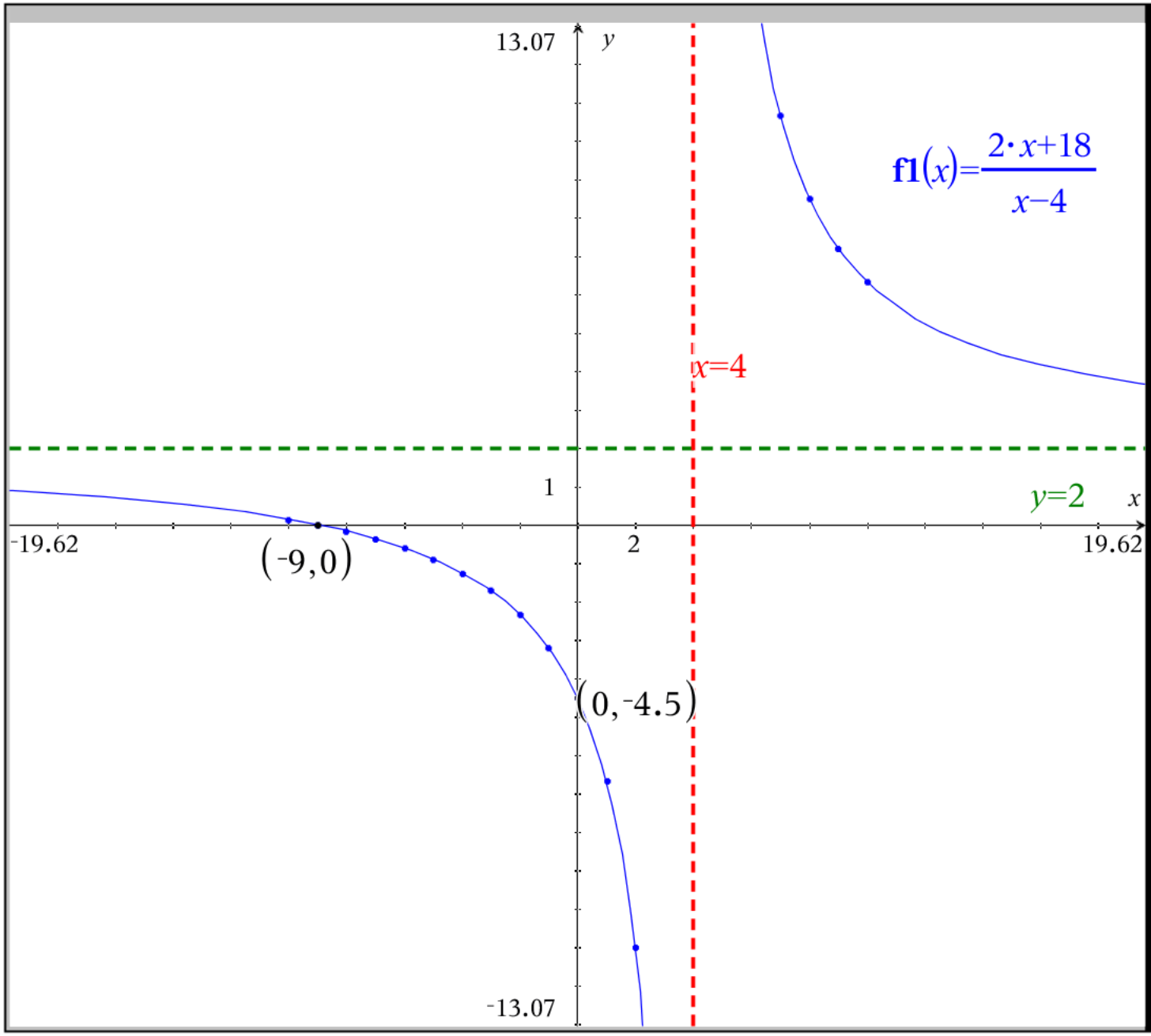


	A x_1	B y_1	C
=		=1.*f1(x_1	
1	-10	0.14285...	
2	-9	0.	
3	-8	-0.1666...	
4	-7	-0.3636...	
5	-6	-0.6	
6	-5	-0.8888...	
7	-4	-1.25	
8	-3	-1.7142...	
9	-2	-2.3333...	
10	-1	-3.2	
11	0	-4.5	
12	1	-6.6666...	
13	2	-11.	
14	3	-24.	
15	4	#UNDEF...	
16	5	28.	
17	6	15.	
18	7	10.6666...	
19	8	8.5	
20	9	7.2	

C1

$g(x)=\frac{2x+18}{x-4}=\frac{2\cdot(x+9)}{x-4}$

x intercept (−9,0)

HOW? Set numerator = 0 and solve for x

y intercept $(0,\frac{-18}{4})=(0,-4.5)$

HOW? Set x = 0 and evaluate f(0)

vertical asymptote at x =4

HOW? Set denominator = 0 and solve for x

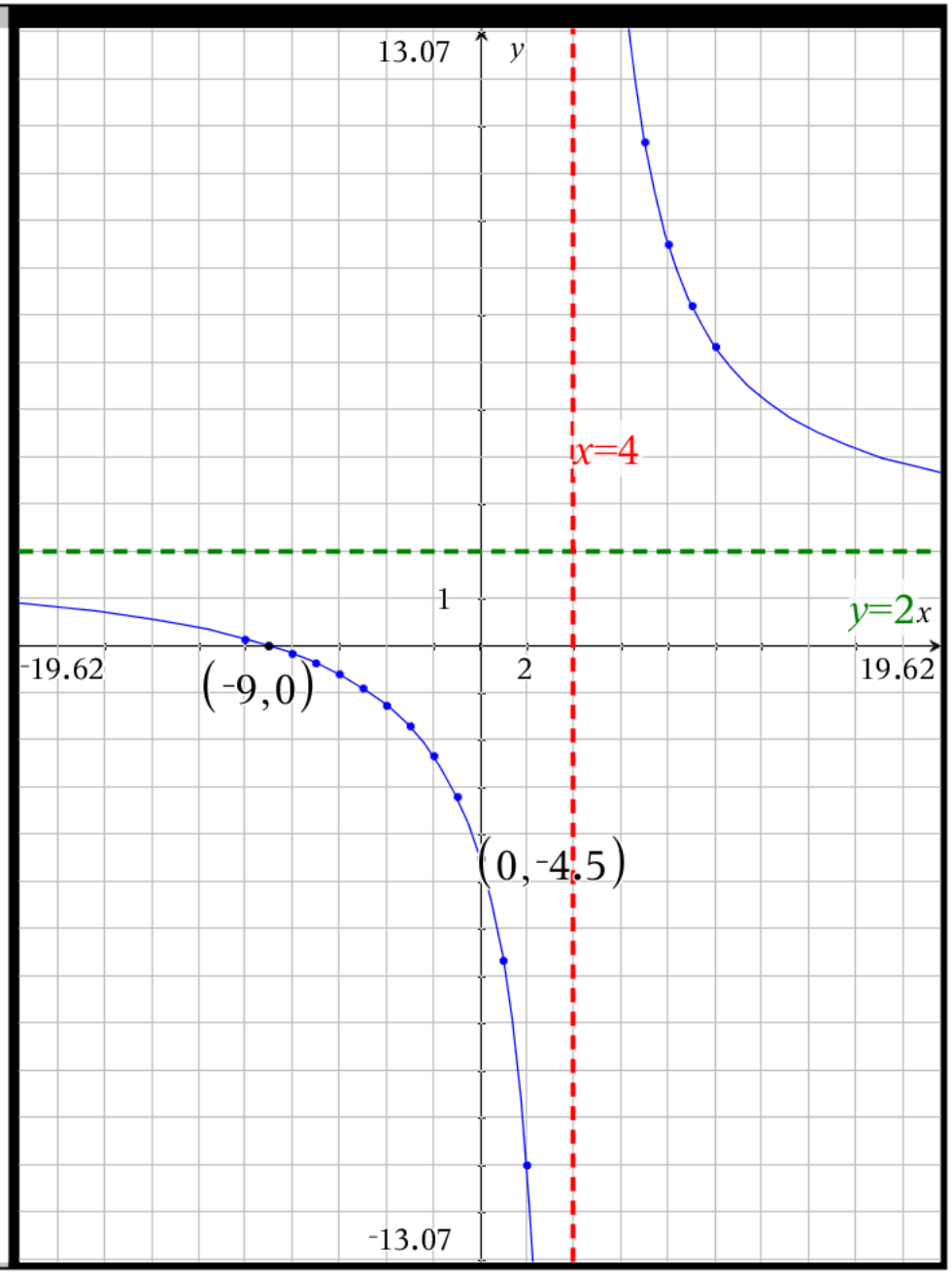
horizontal asymptote at y = 2

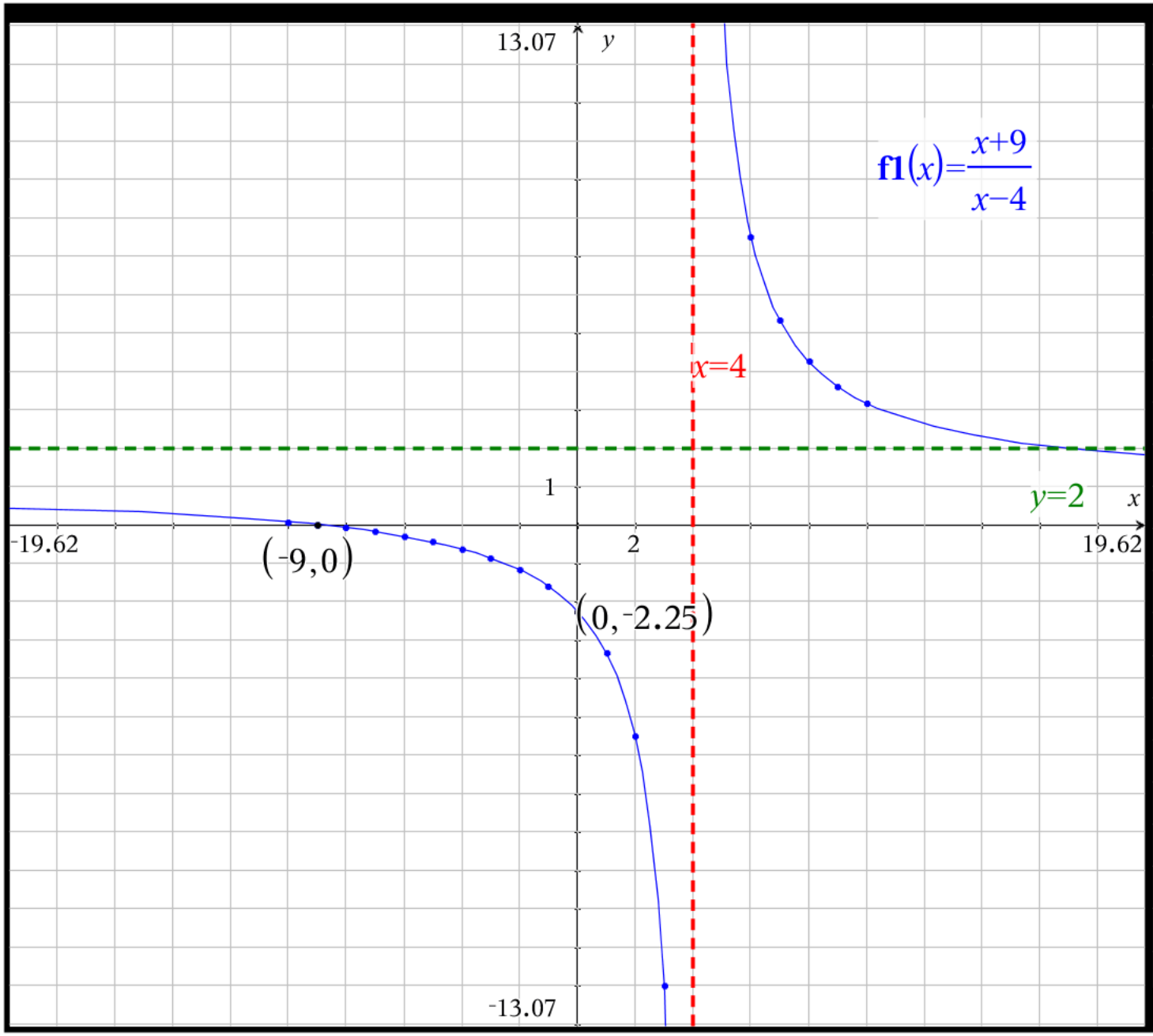
HOW?

Method 1) Lead coefficient over lead coefficient

Method 2) Division quotient

Method 3) Synthetic division quotient





	A x_1	B y_1	C
=		=1.*f1(x_1	
1	-10	0.07142...	
2	-9	0.	
3	-8	-0.0833...	
4	-7	-0.1818...	
5	-6	-0.3	
6	-5	-0.4444...	
7	-4	-0.625	
8	-3	-0.8571...	
9	-2	-1.1666...	
10	-1	-1.6	
11	0	-2.25	
12	1	-3.3333...	
13	2	-5.5	
14	3	-12.	
15	4	#UNDEF...	
16	5	14.	
17	6	7.5	
18	7	5.33333...	
19	8	4.25	
20	9	3.6	

A1 -10

$g(x)=\frac{x+9}{x-4}$

x intercept (−9,0)

HOW? Set numerator = 0 and solve for x

y intercept $(0,\frac{-9}{4})=(0,-2.25)$

HOW? Set x = 0 and evaluate g(0)

vertical asymptote at x =4

HOW? Set denominator = 0 and solve for x

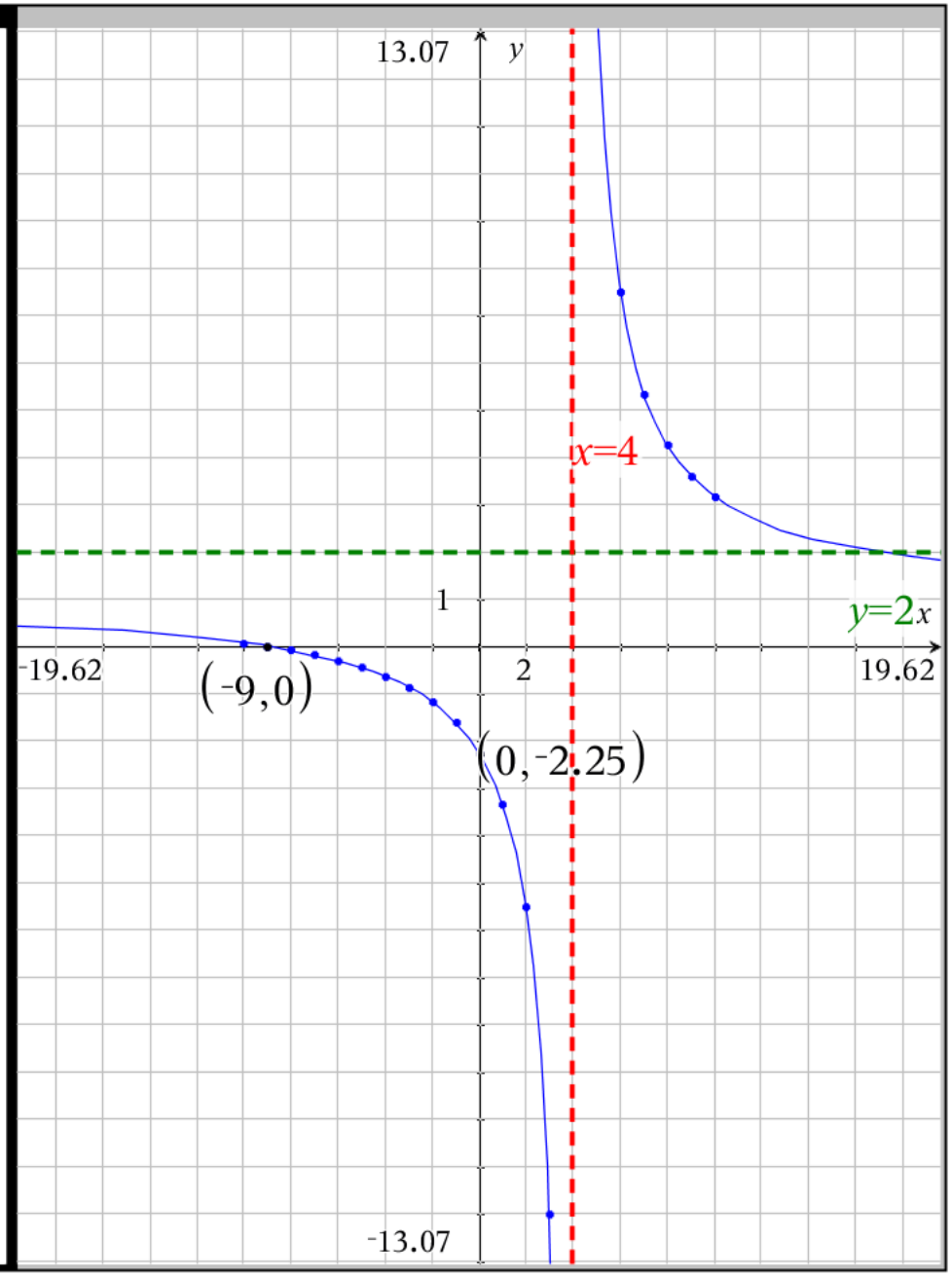
horizontal asymptote at y = 1

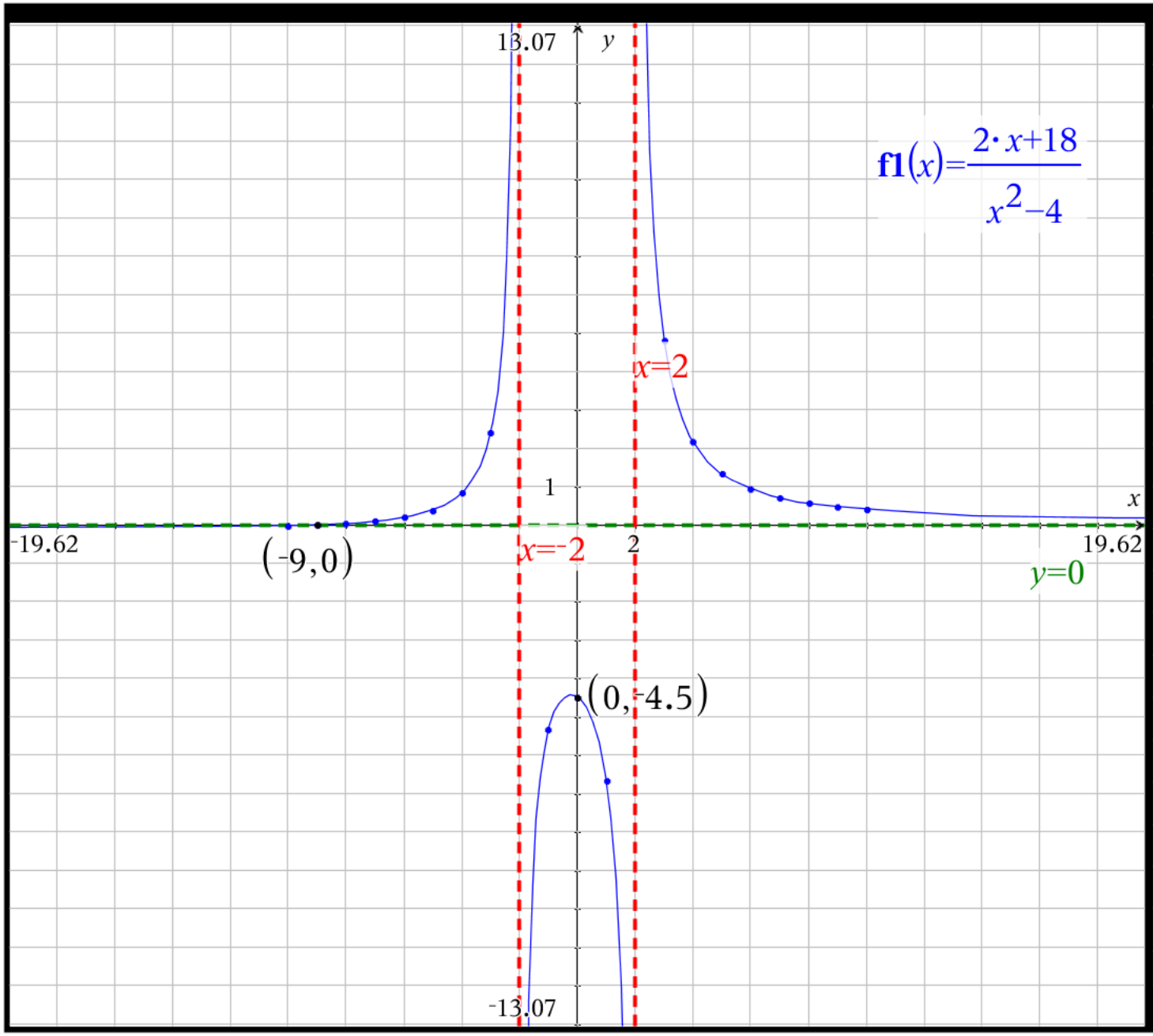
HOW?

Method 1) Lead coefficient over lead coefficient

Method 2) Division quotient

Method 3) Synthetic division quotient





	A x_1	B y_1	C
=		=1.*f1(x_1	
1	-10	-0.0208...	
2	-9	0.	
3	-8	0.03333...	
4	-7	0.08888...	
5	-6	0.1875	
6	-5	0.38095...	
7	-4	0.83333...	
8	-3	2.4	
9	-2	#UNDEF...	
10	-1	-5.3333...	
11	0	-4.5	
12	1	-6.6666...	
13	2	#UNDEF...	
14	3	4.8	
15	4	2.16666...	
16	5	1.33333...	
17	6	0.9375	
18	7	0.71111...	
19	8	0.56666...	
20	9	0.46753...	

A1 -10

$$h(x)=\frac{2x+18}{x^2-4}=\frac{2(x+9)}{(x+2)(x-2)}$$

x intercept (−9,0)

HOW? Set numerator = 0 and solve for x

y intercept $(0,\frac{-18}{4})=(0,-4.5)$

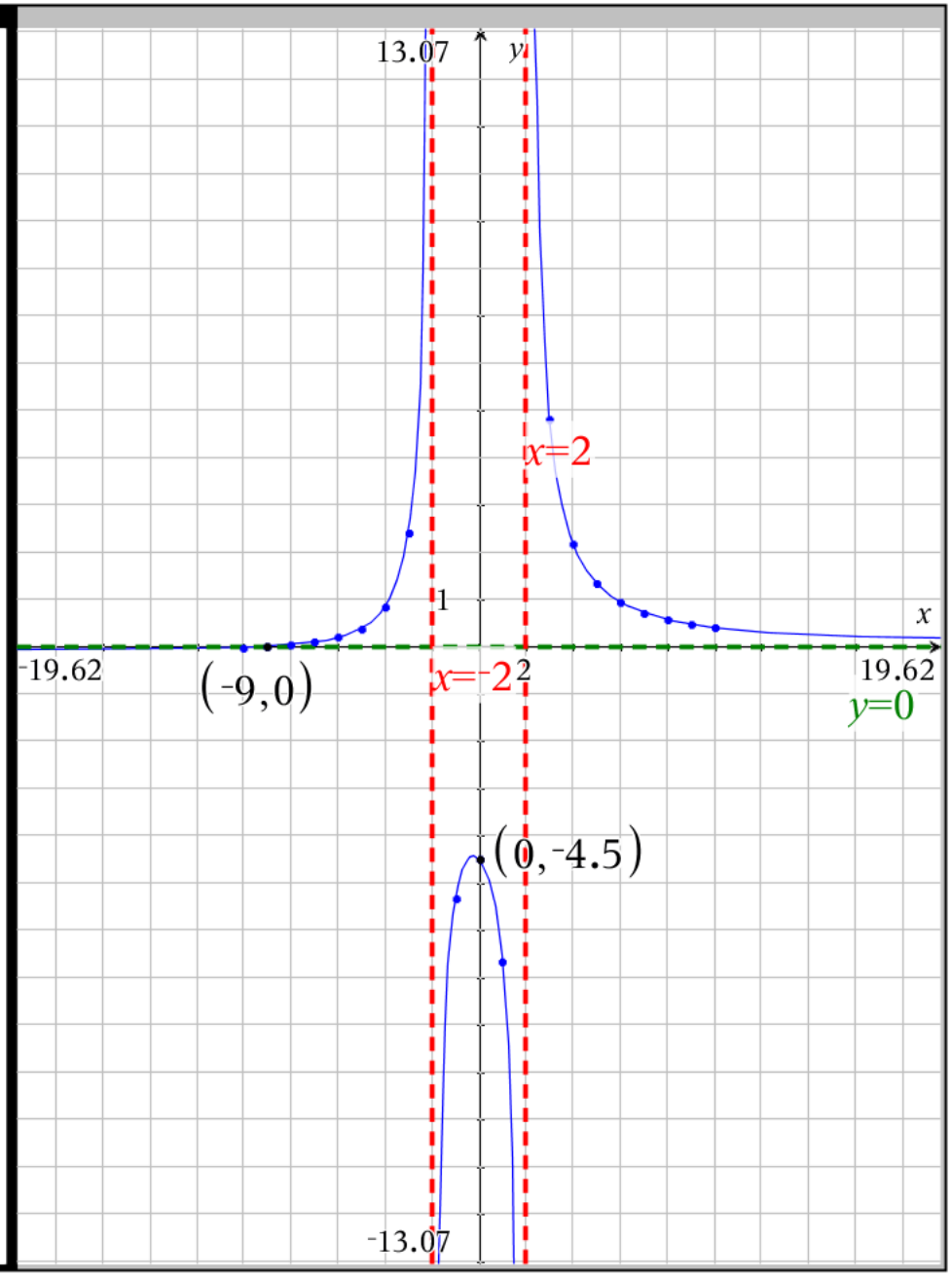
HOW? Set x = 0 and evaluate h(0)

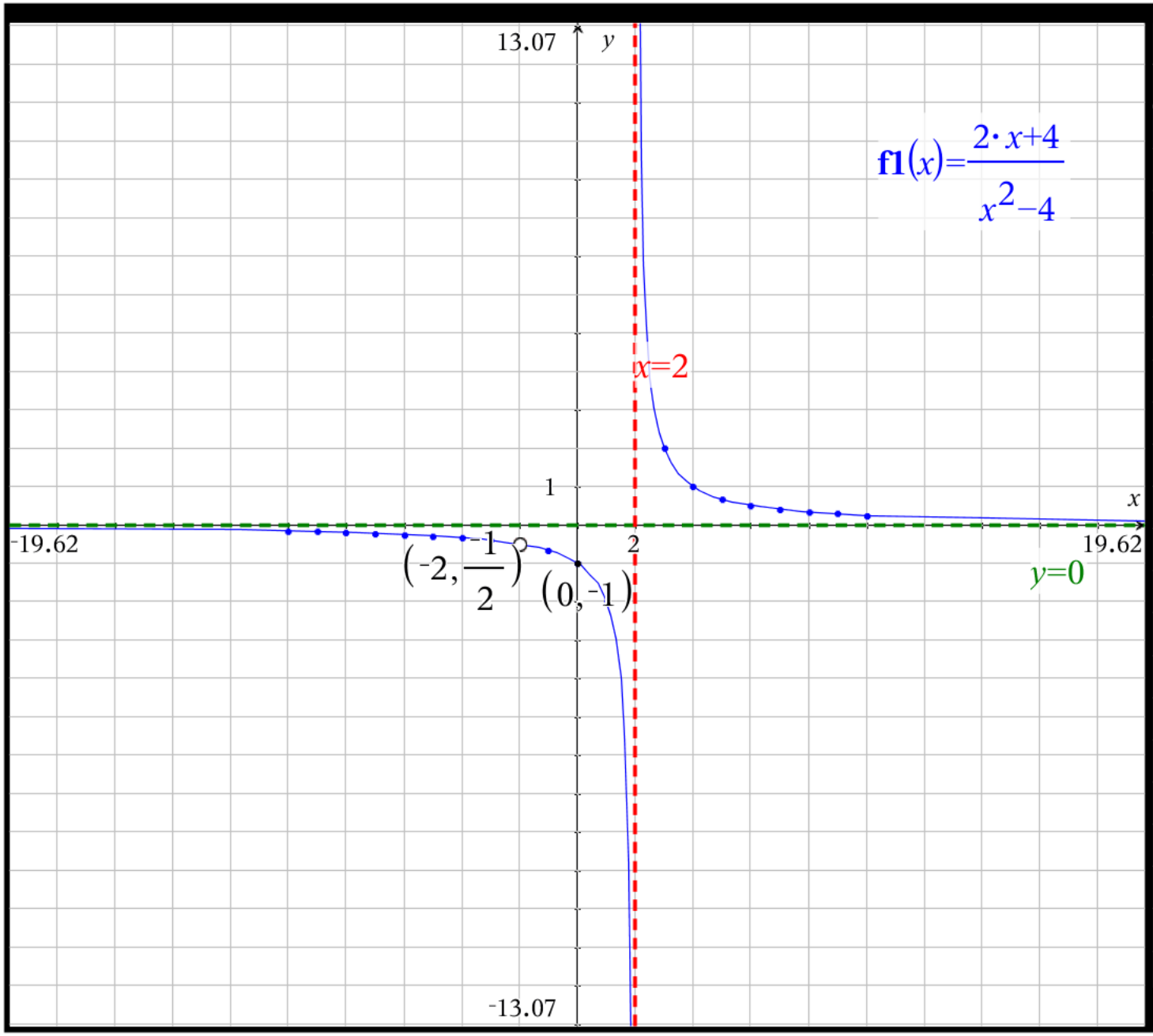
vertical asymptote at x =2 and x = −2

HOW? Set denominator = 0 and solve for x

horizontal asymptote at y = 0

HOW? when degree of numerator is less than the degree of the denominator, the x axis is the horizontal asymptote





	A x_1	B y_1	C
=		=1.*f1(x_1	
1	-10	-0.1666...	
2	-9	-0.1818...	
3	-8	-0.2	
4	-7	-0.2222...	
5	-6	-0.25	
6	-5	-0.2857...	
7	-4	-0.3333...	
8	-3	-0.4	
9	-2	#UNDEF...	
10	-1	-0.6666...	
11	0	-1.	
12	1	-2.	
13	2	#UNDEF...	
14	3	2.	
15	4	1.	
16	5	0.66666...	
17	6	0.5	
18	7	0.4	
19	8	0.33333...	
20	9	0.28571...	

$j(x)=\frac{2x+4}{x^2-4}=\frac{2(x+2)}{(x+2)(x-2)}=\frac{2}{x-2}$ with $x\neq-2$

HOLE OCCURS!

x intercept NONE

WHY?

reduced version has no x in numerator

y intercept $(0,\frac{-4}{4})=(0,-1)$

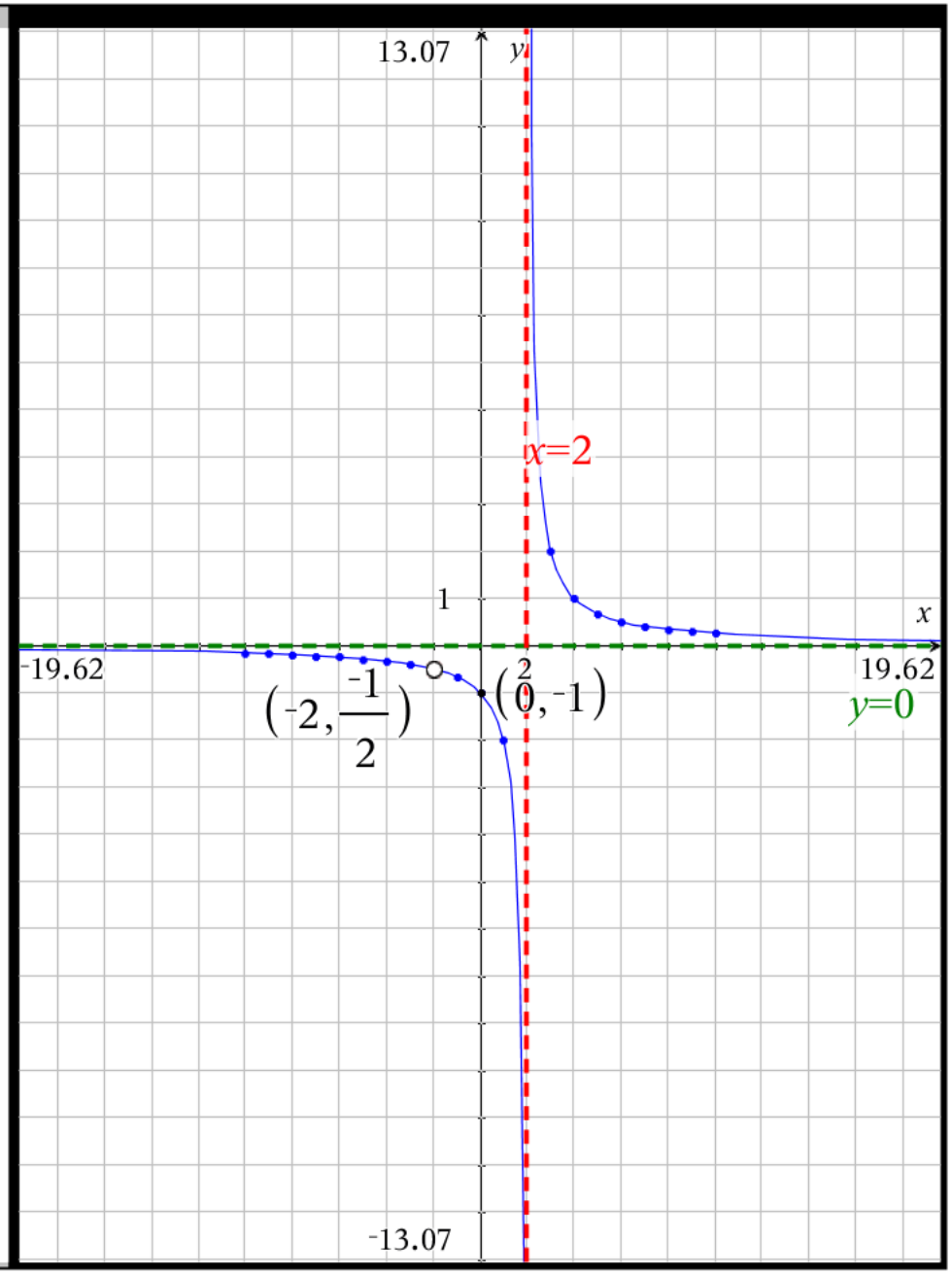
HOW? Set x = 0 and evaluate j(0)

vertical asymptote at x =2 and x NOT at −2

HOW? Set denominator = 0 and solve for x

horizontal asymptote at y = 0

HOW? when degree of numerator is less than the degree of the denominator, the x axis is the horizontal asymptote



$j(x)=\frac{2x+4}{x^2-4}=\frac{2(x+2)}{(x+2)(x-2)}=\frac{2}{x-2}$ with $x\neq-2$

HOLE OCCURS!

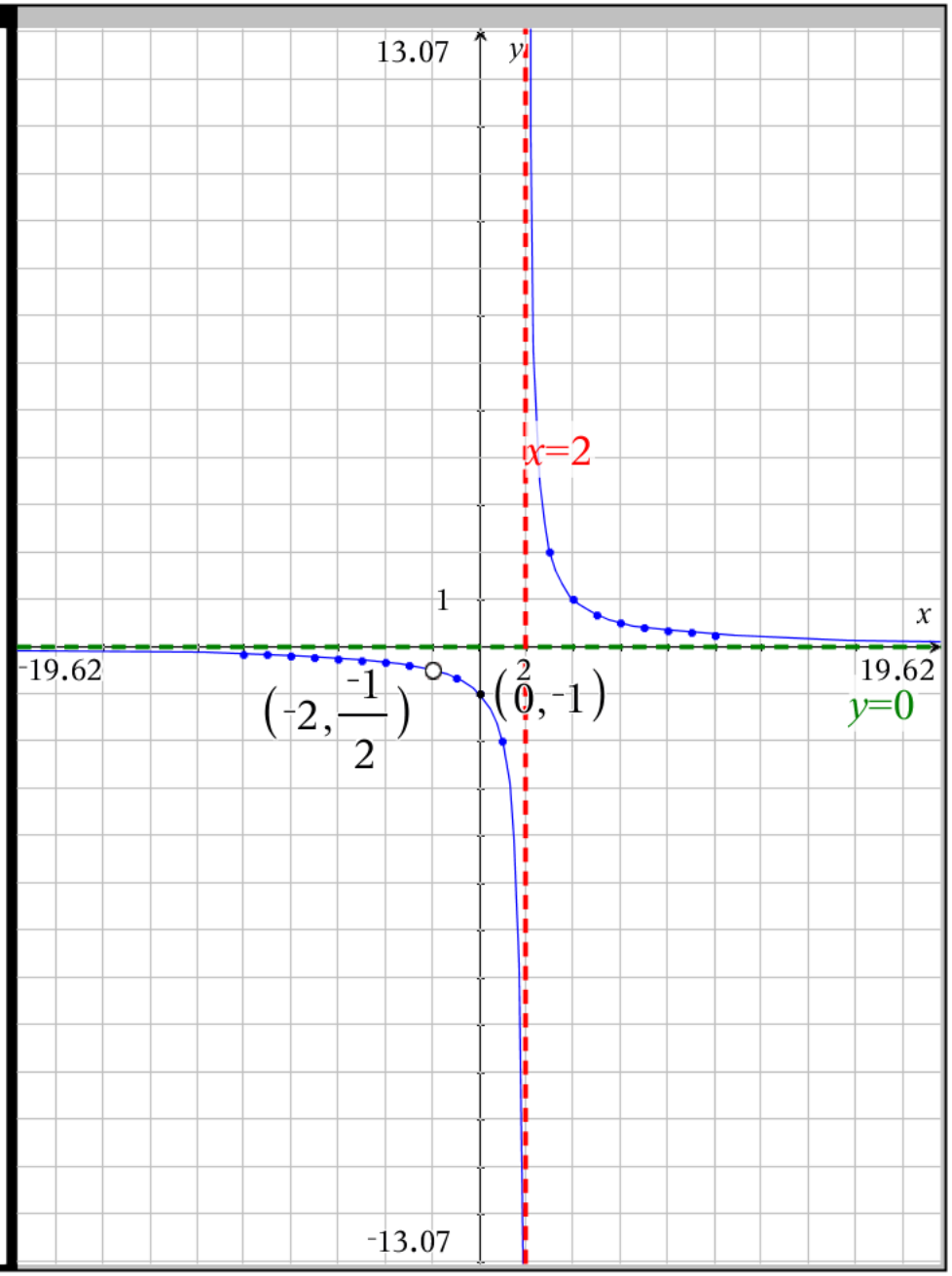
1) since we cancelled x+2

2) we set x +2 = 0

3) solve for x and we get x = −2

THIS IS X of HOLE

4) replace x = −2 into SIMPLIFIED rational function to find y coordinate of hole

$\frac{2}{-2-2}=\frac{-1}{2}$

5) HOLE $(-2,\frac{-1}{2})$