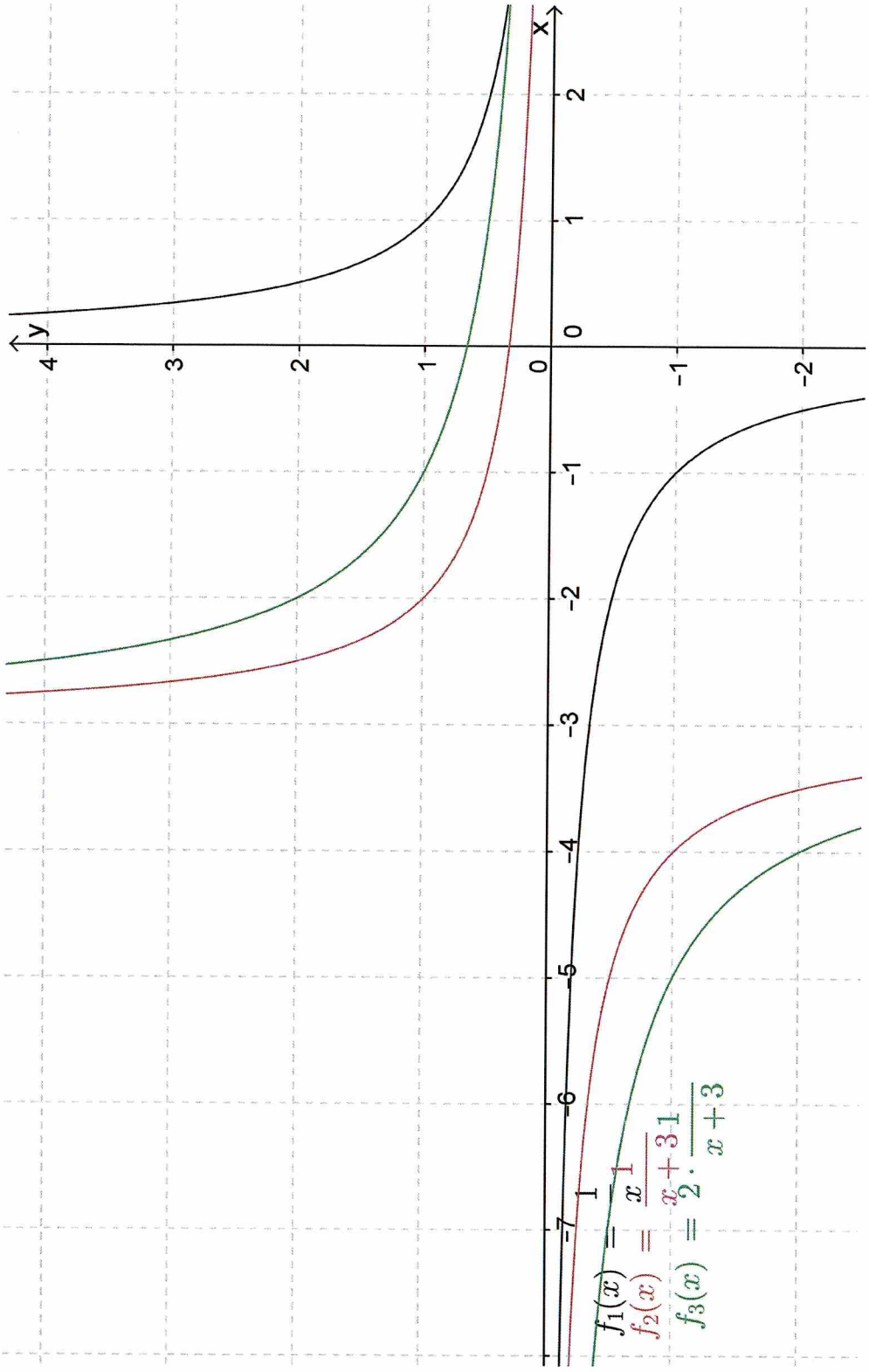
Fonctions homographiques : Solutions

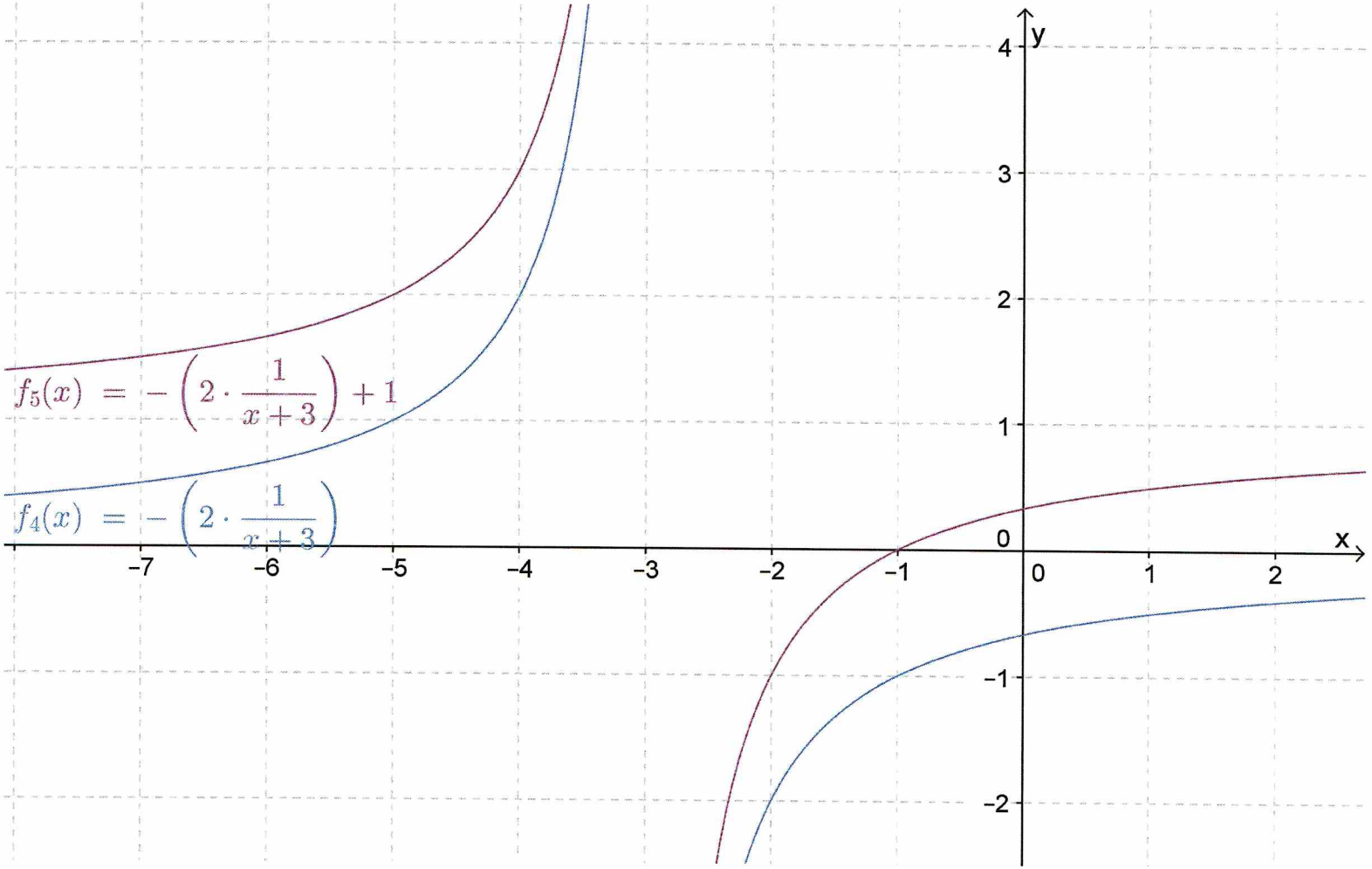
Etablir le graphe de fonctions homographiques suivantes :

1. $f(x) = \dfrac{x+1}{x+3}$
2. $f(x) = \dfrac{4x+1}{2x+1}$
3. $f(x) = \dfrac{3-3x}{1-3x}$
4. $f(x) = \dfrac{4x}{1-2x}$

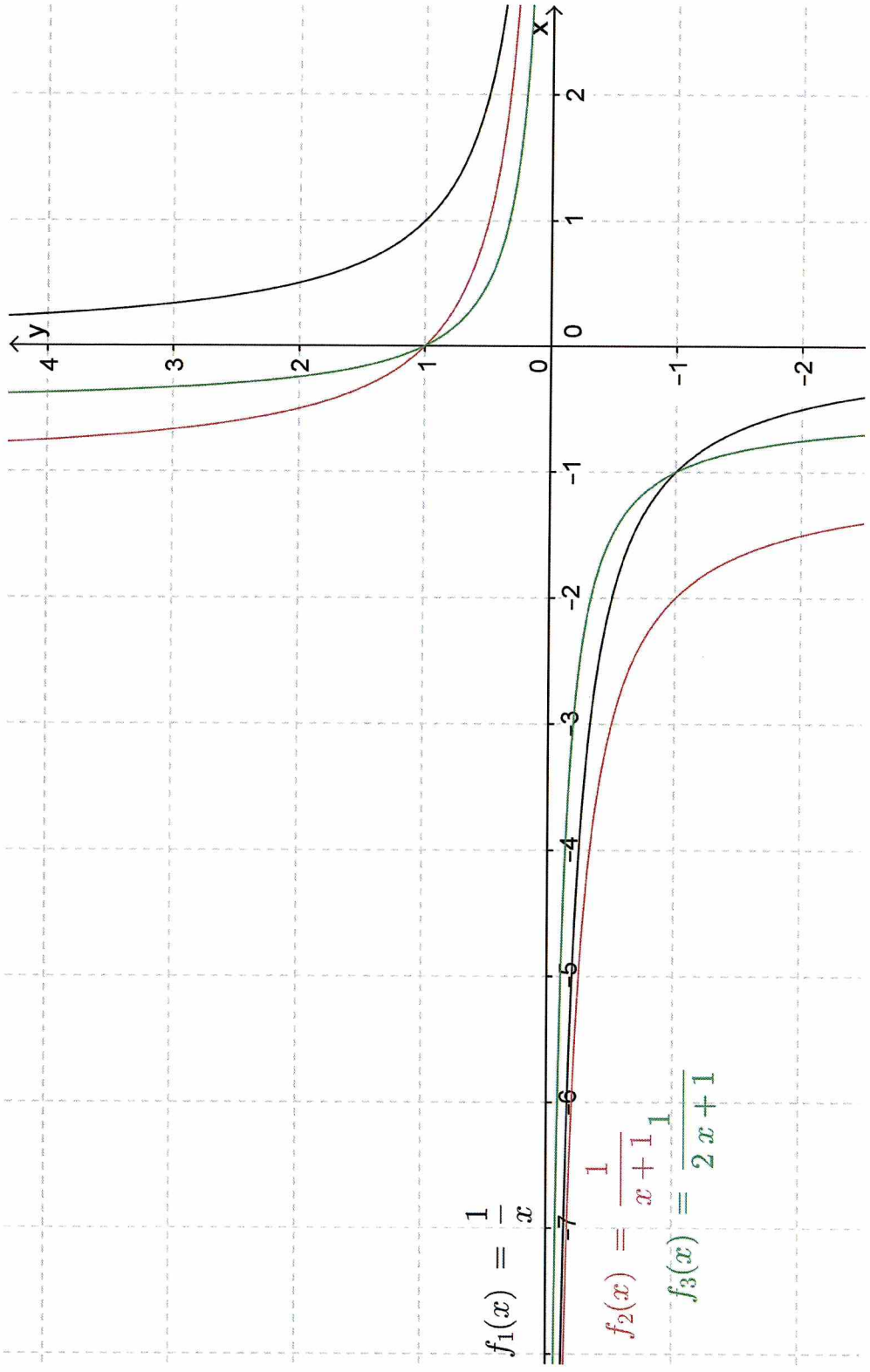
Manipulations graphiques de fonctions

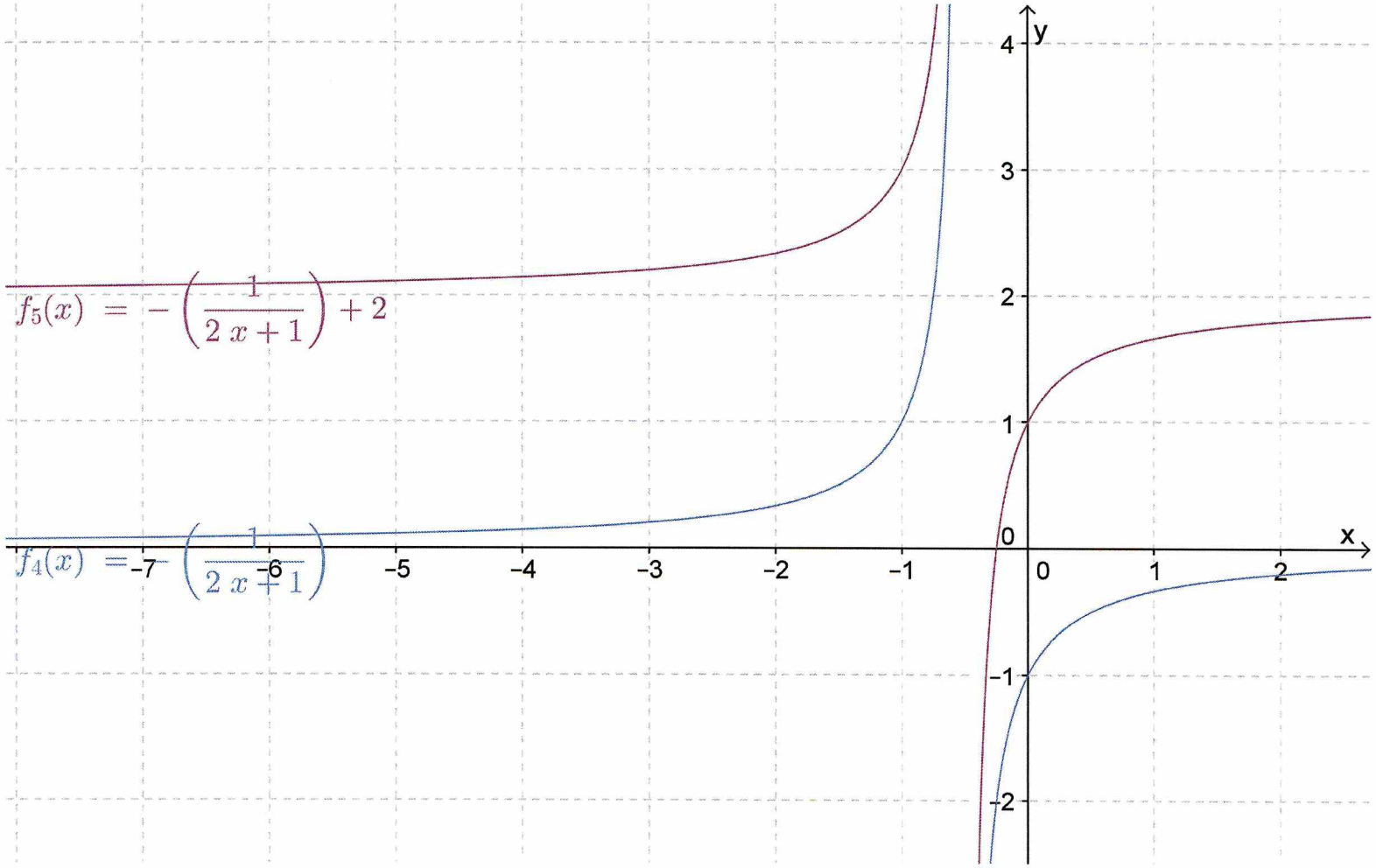
1. $f(x) = \dfrac{x+1}{x+3} = 1 - \dfrac{2}{x+3}$



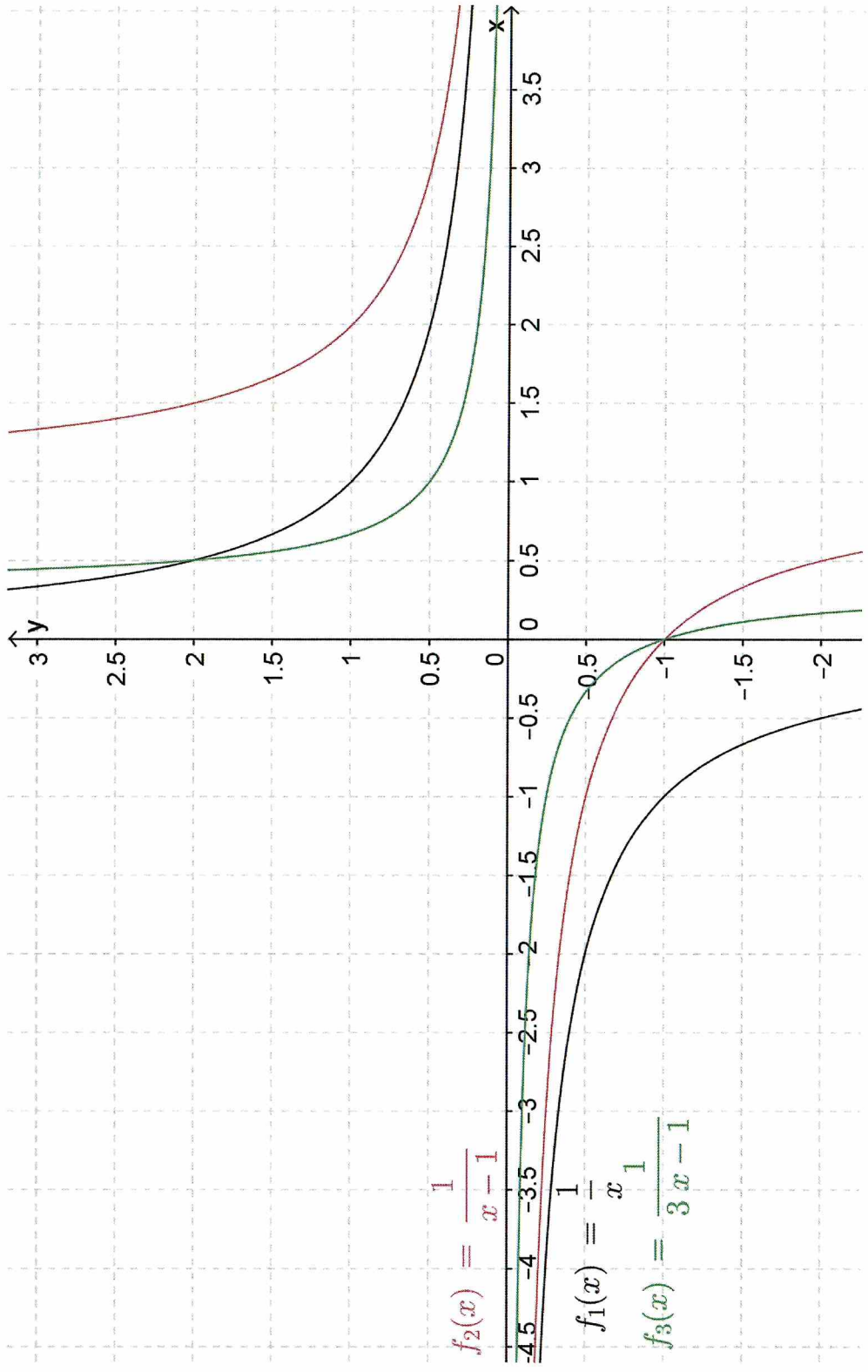

$f_5(x) = -\left(2 \cdot \frac{1}{x+3}\right) + 1$
$f_4(x) = -\left(2 \cdot \frac{1}{x+3}\right)$
y
x
4
3
2
1
0
−1
−2
−7
−6
−5
−4
−3
−2
−1
0
1
2

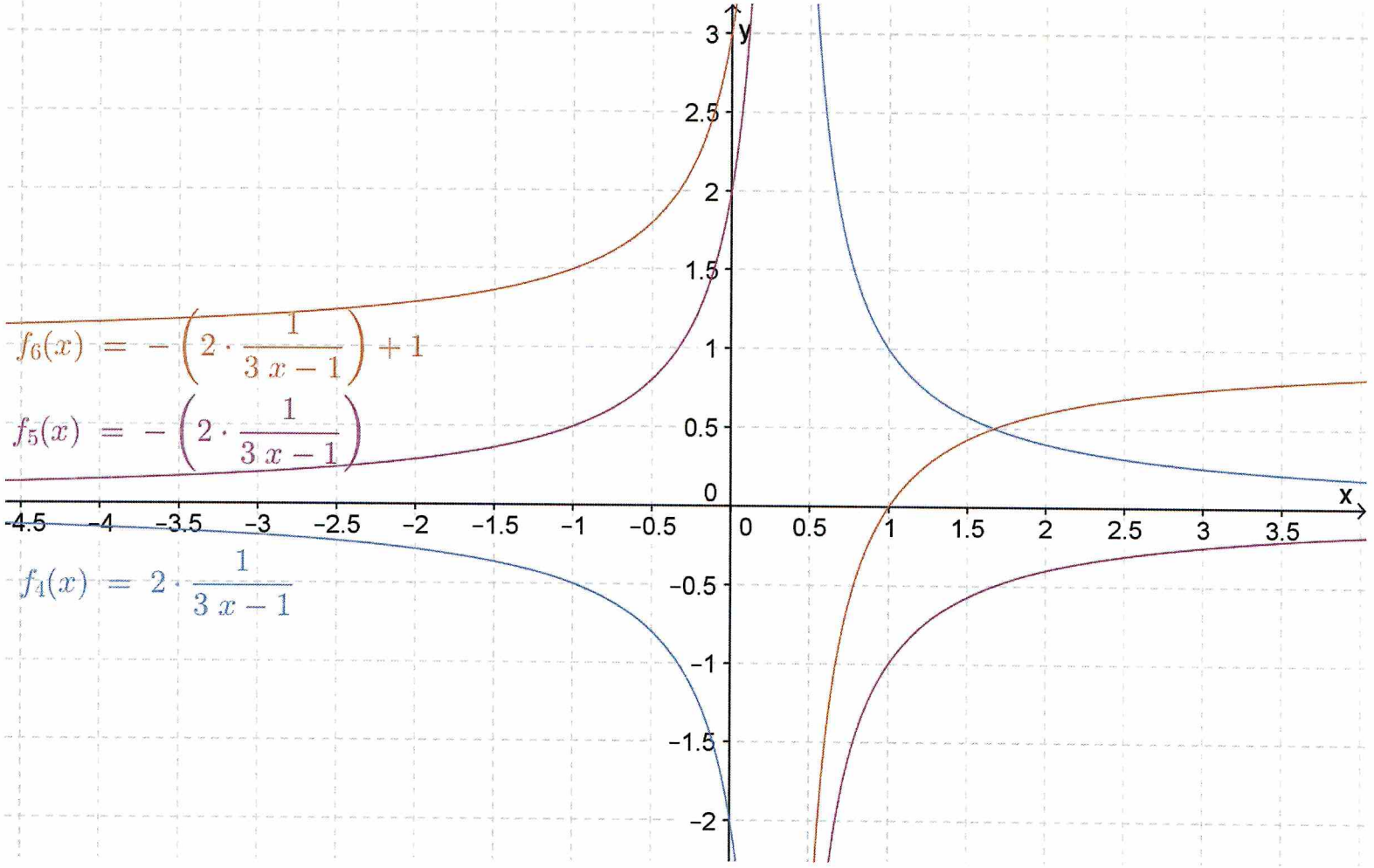
2. $f(x) = \dfrac{4x+1}{2x+1} = 2 - \dfrac{1}{2x+1}$



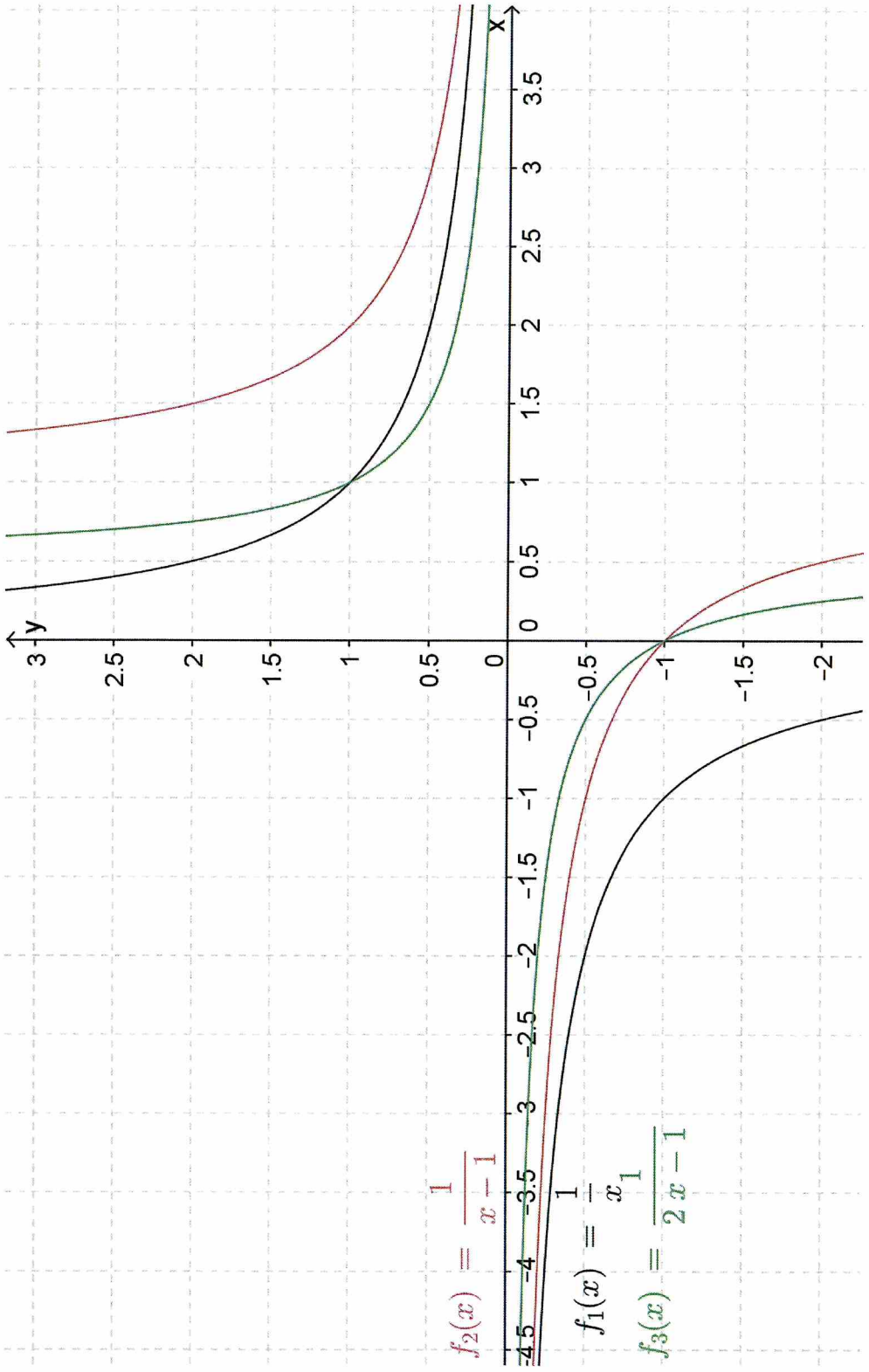

$f_5(x) = -\left(\frac{1}{2\,x+1}\right)+2$
$f_4(x) = -\left(\frac{1}{2\,x+1}\right)$
y
x
4
3
2
1
0
−1
−2
−7
−6
−5
−4
−3
−2
−1
0
1
2

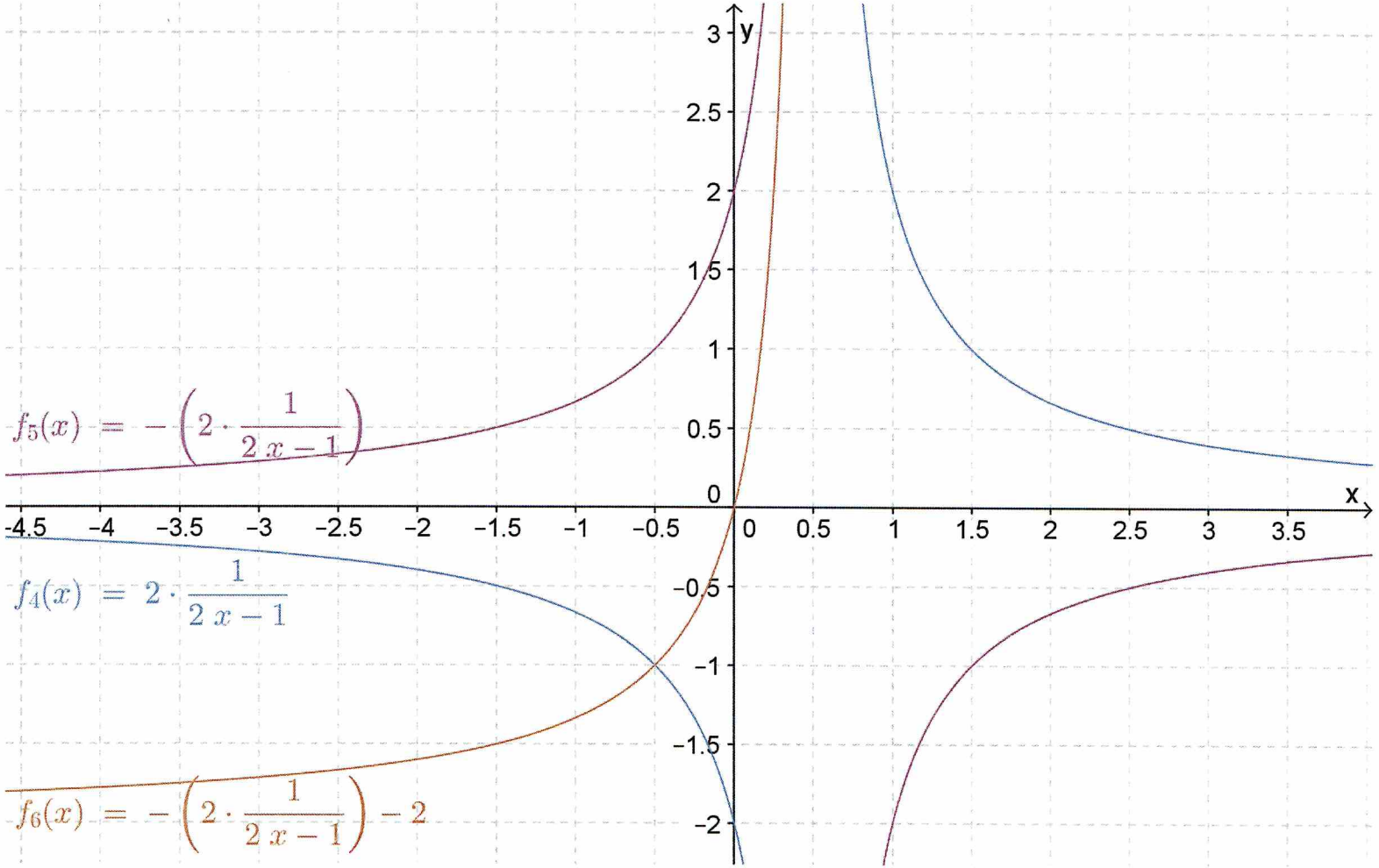
3. $f(x) = \dfrac{3-3x}{1-3x} = 1 - \dfrac{2}{3x-1}$




$f_6(x) = -\left(2 \cdot \frac{1}{3\,x-1}\right)+1$
$f_5(x) = -\left(2 \cdot \frac{1}{3\,x-1}\right)$
$f_4(x) = 2 \cdot \frac{1}{3\,x-1}$
x
y
-4.5 -4 -3.5 -3 -2.5 -2 -1.5 -1 -0.5 0 0.5 1 1.5 2 2.5 3 3.5
3 2.5 2 1.5 1 0.5 0 -0.5 -1 -1.5 -2

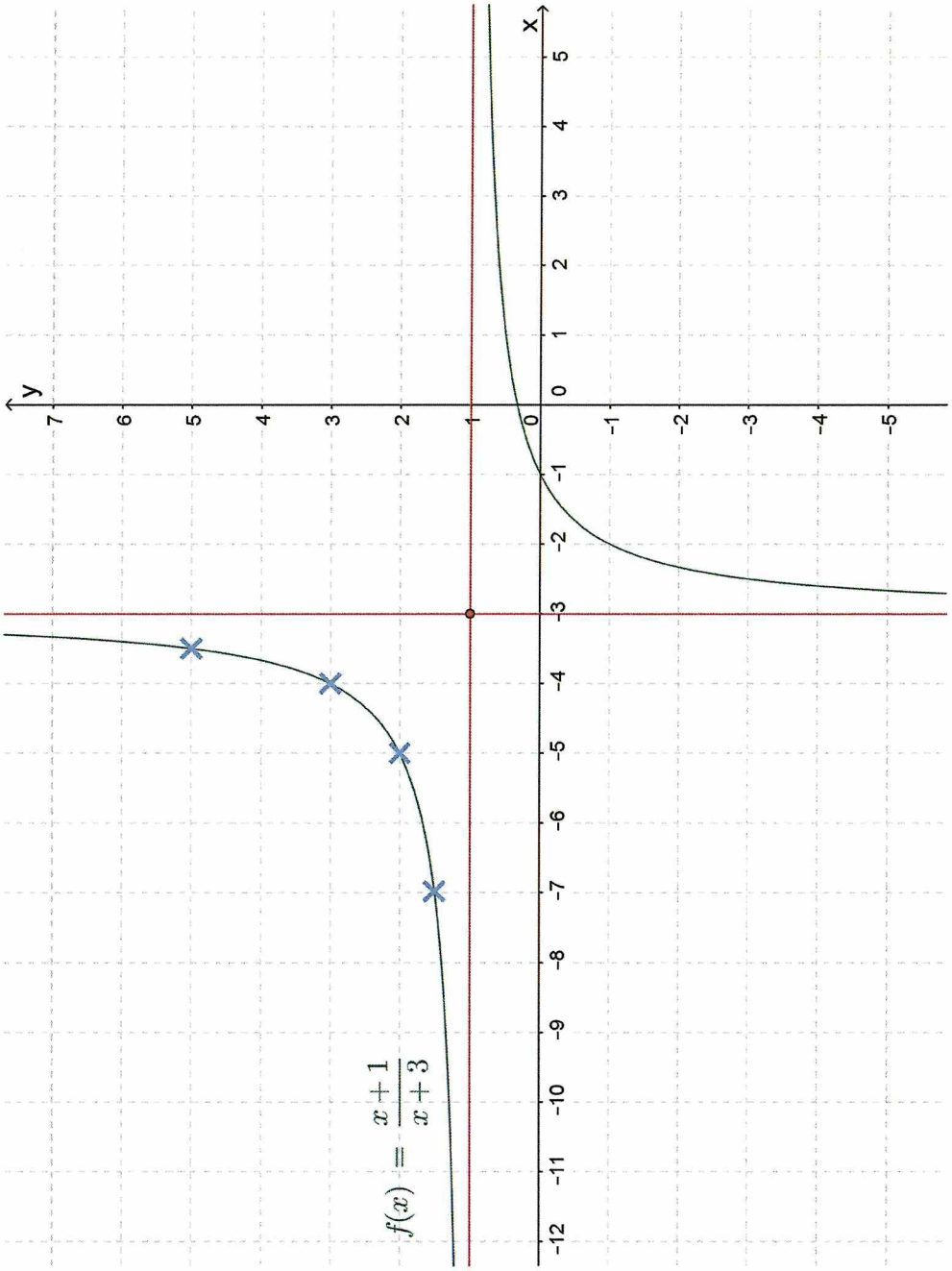
4. $f(x) = \dfrac{4x}{1-2x} = -2 - \dfrac{2}{2x-1}$



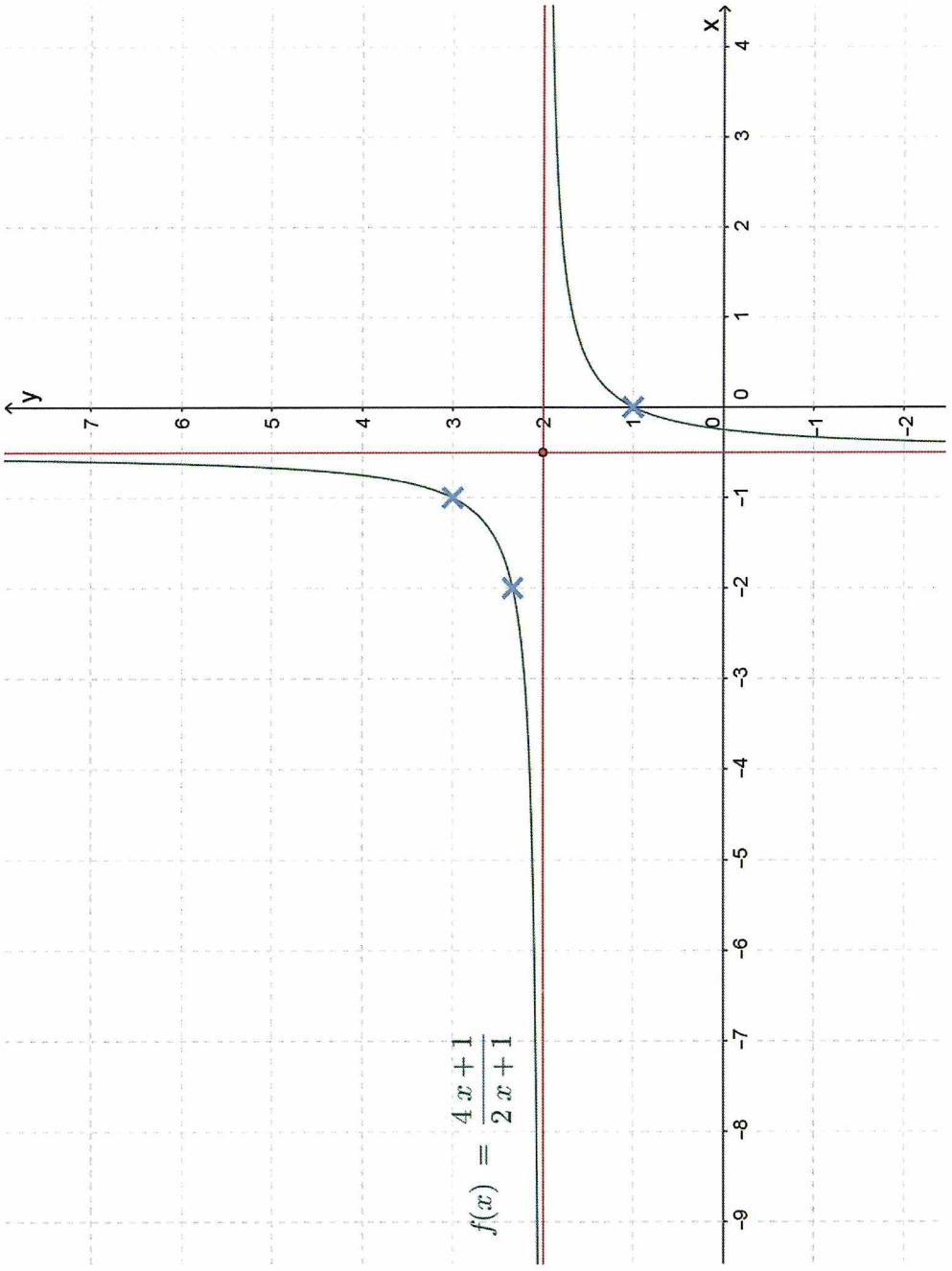

$f_5(x) = -\left(2 \cdot \frac{1}{2\,x - 1}\right)$
$f_4(x) = 2 \cdot \frac{1}{2\,x - 1}$
$f_6(x) = -\left(2 \cdot \frac{1}{2\,x - 1}\right) - 2$
x
y
-4.5
-4
-3.5
-3
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
3
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2

Asymptotes et centre de symétrie

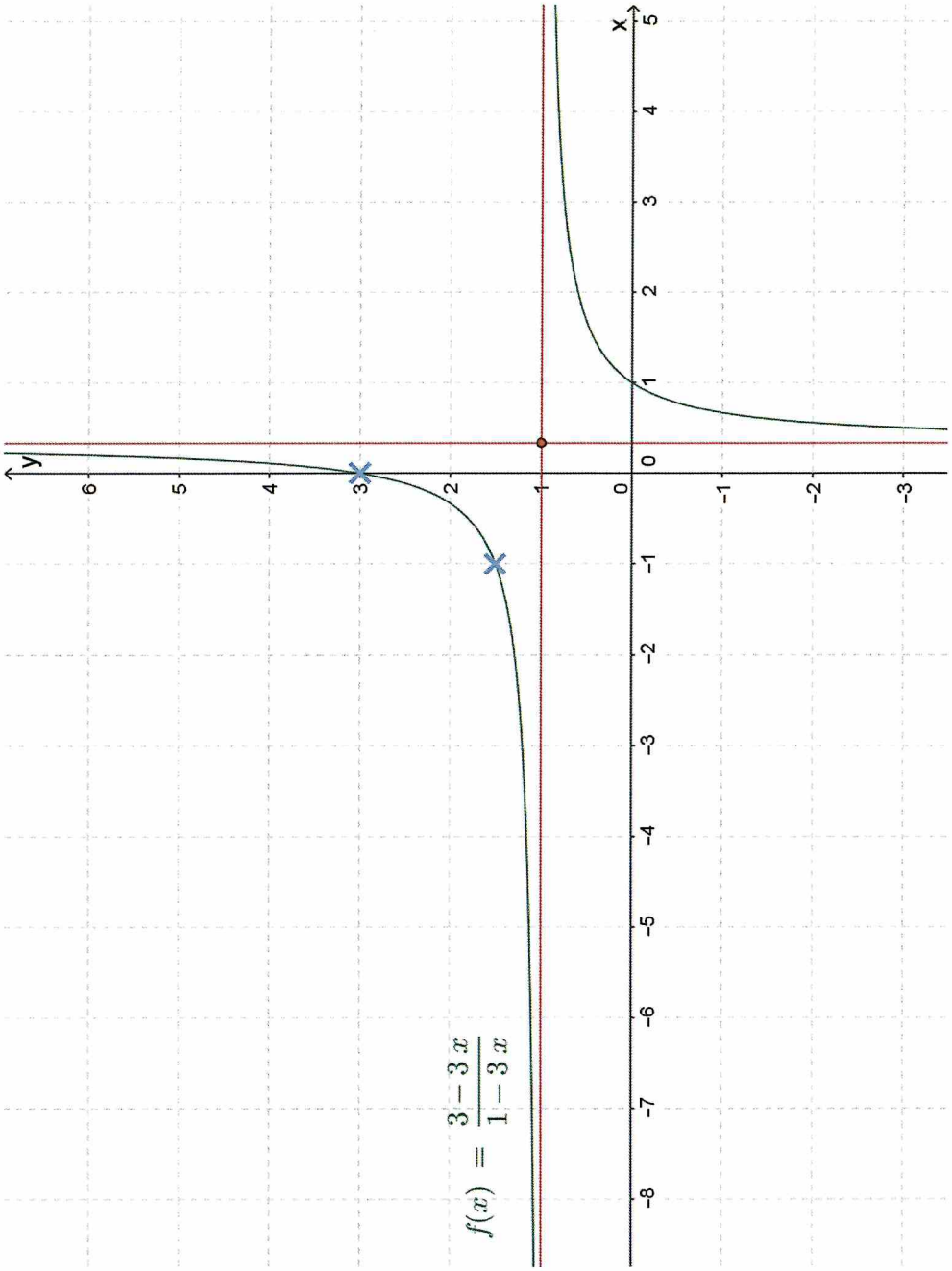
(a) AV$\equiv x = -3$, AH$\equiv y = 1$, C $:(-3, 1)$ et on recherche quelques points supplémentaires ;



(b) AV$\equiv x = -\dfrac{1}{2}$, AH$\equiv y = 2$, C $: \left(-\dfrac{1}{2}, 2\right)$ et on recherche quelques points supplémentaires ;



(c) AV$\equiv x = \dfrac{1}{3}$, AH$\equiv y = 1$, C : $\left(\dfrac{1}{3}, 1\right)$ et on recherche quelques points supplémentaires ;



(d) AV$\equiv x = \dfrac{1}{2}$, AH$\equiv y = -2$, C : $\left(\dfrac{1}{2}, -2\right)$ et on recherche quelques points supplémentaires ;