Compléter l'étude de signe et l'étude de croissance, calculer les coordonnées de l'ordonnée à l'origine, des extrema et palier et établir le graphique des fonctions suivantes :

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

1) $ED(f) = \mathbb{R} - \{2\}$

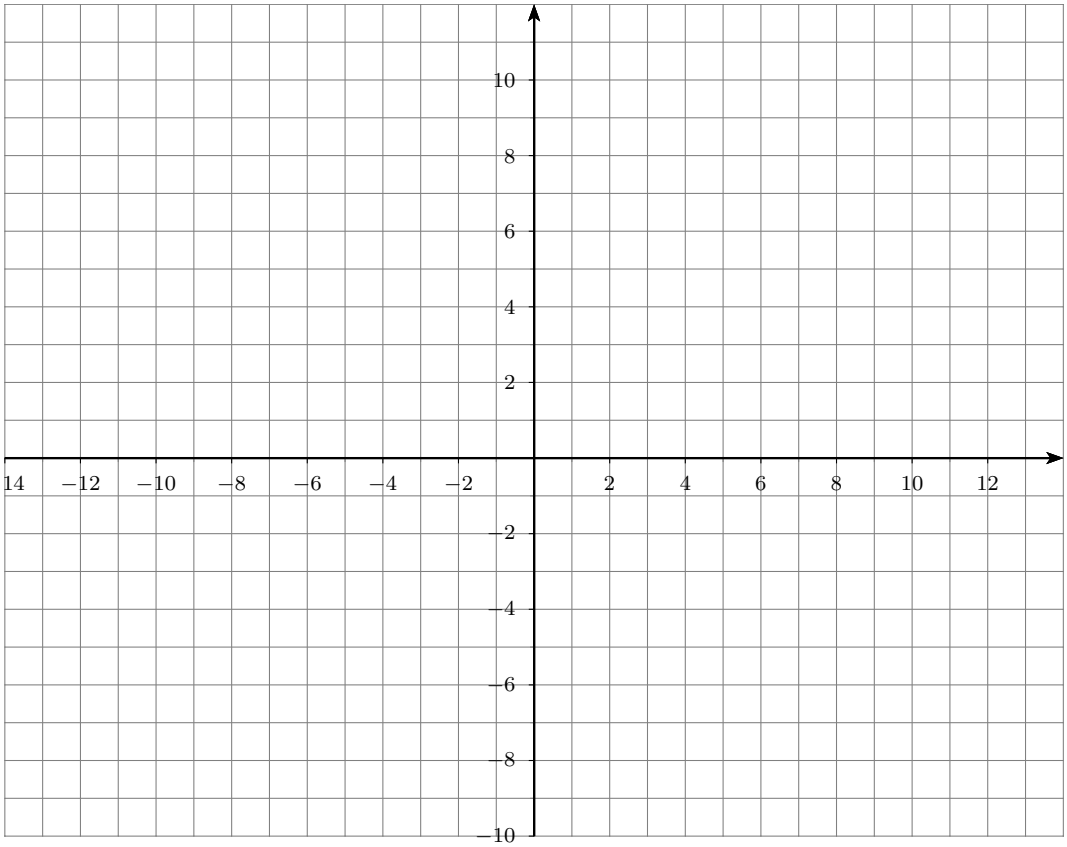
2) signe de f :

x		-3		2	
$f(x)$					

3) asymptotes : AV en $x = 2$ et AH en $y = 1$

4) croissance de f : $f'(x) = \dfrac{-5}{(x-2)^2}$

x		2	
$f'(x)$			
f			



b) $f(x) = \dfrac{(x-5)^2}{2x}$

1) $ED(f) = \mathbb{R}^*$

2) signe de f :

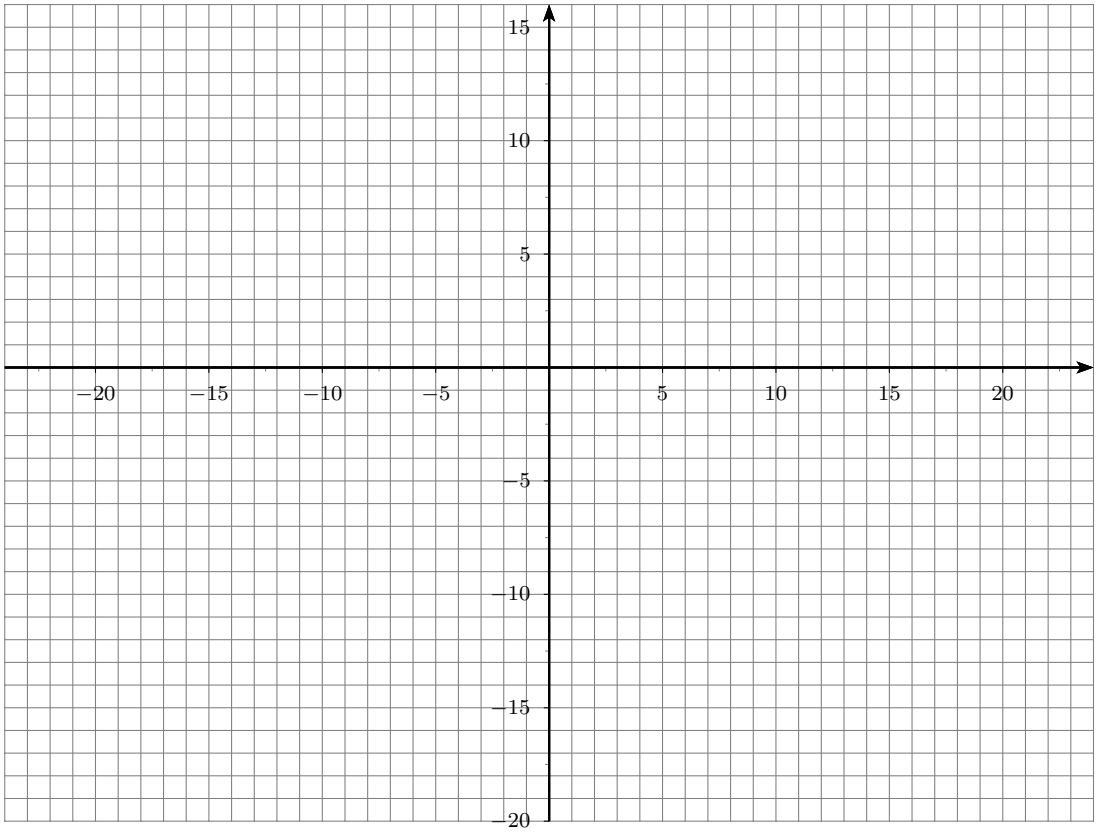
x		0		5	
$f(x)$					

3) asymptotes : AV en $x = 0$ et AO en $y = \dfrac{1}{2}x - 5$

4) croissance de f :

$f'(x) = \dfrac{(x-5)(x+5)}{2x^2}$

x		-5		0		5	
$f'(x)$							
f							



c) $f(x) = \dfrac{x^2}{(x-3)^2(x+4)}$

1) $ED(f) = \mathbb{R} - \{-4; 3\}$

2) signe de f :

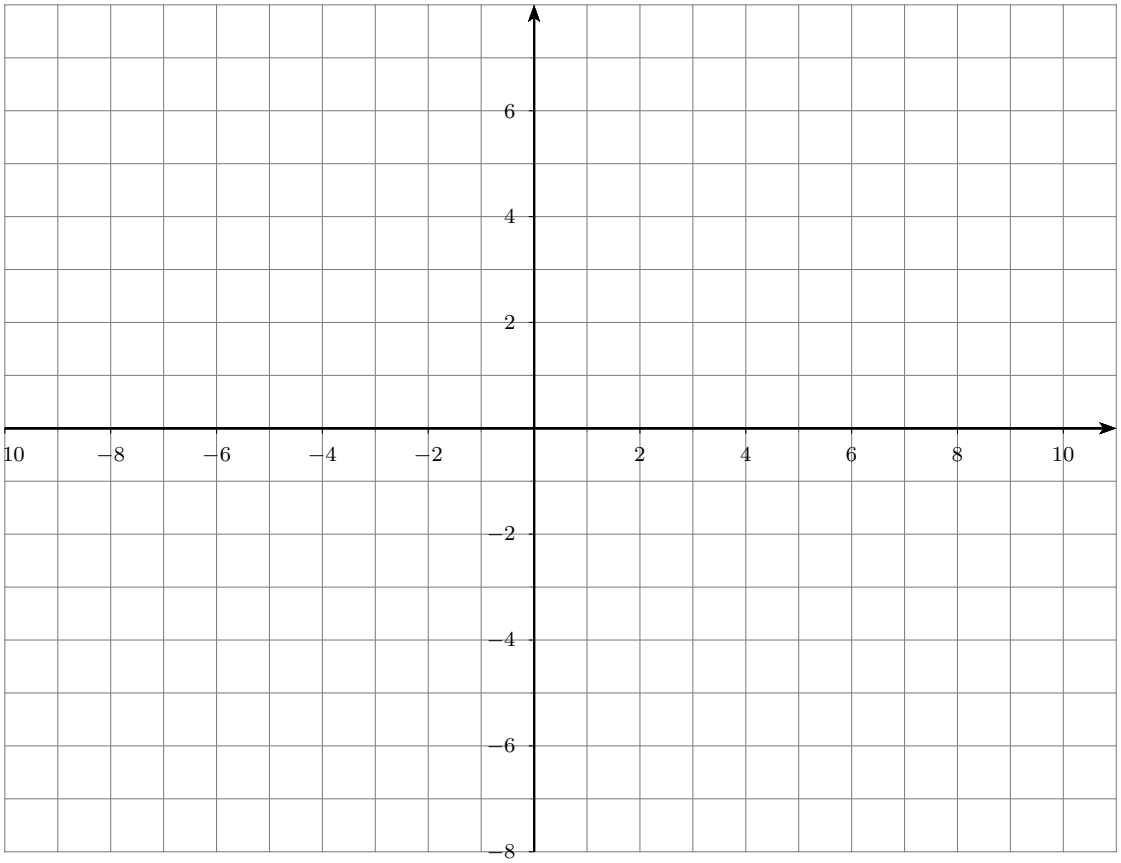
x		-4		0		3	
$f(x)$							

3) asymptotes : AV en $x = -4$ et en $x = 3$ et AH en $y = 0$

4) croissance de f :

$$f'(x) = \frac{-x(x^2+3x+24)}{(x-3)^3(x+4)^2}$$

x		-4		0		3	
$f'(x)$							
f							



d) $f(x) = \dfrac{x^3 - 8}{x + 1}$

1) $ED(f) = \mathbb{R} - \{-1\}$

2) signe de f :

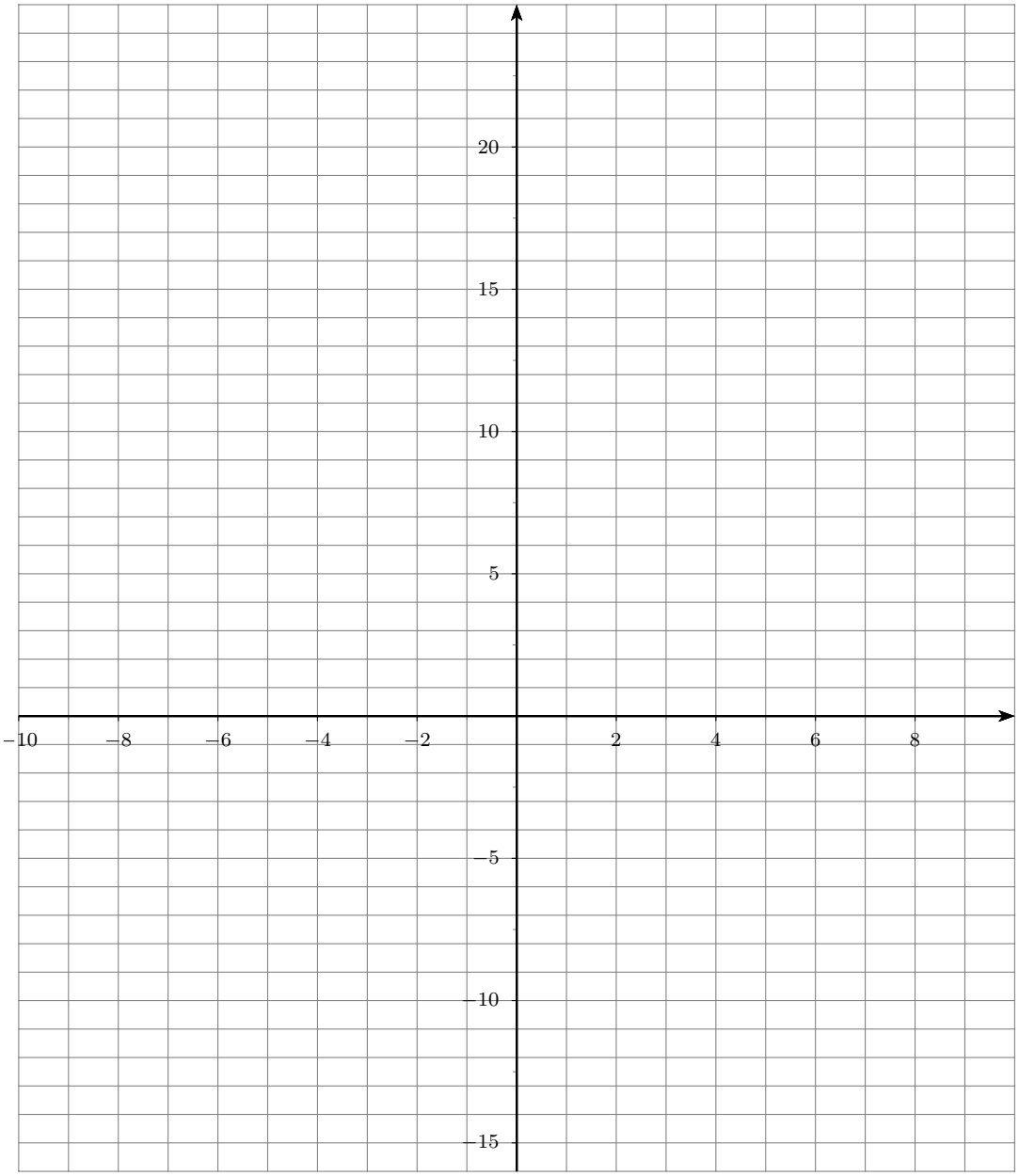
x		-1		2	
$f(x)$					

3) asymptotes : AV en $x = -1$

4) croissance de f :

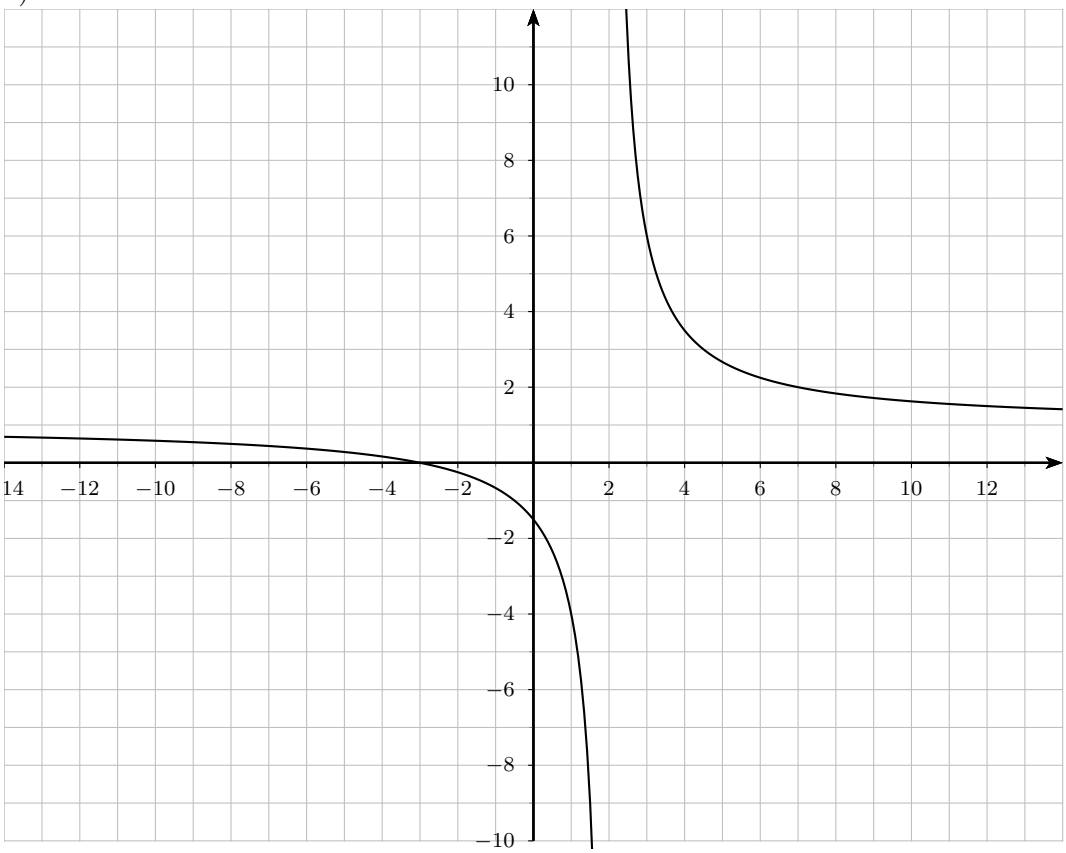
$$f'(x) = \frac{2x^3 + 3x^2 + 8}{(x+1)^2}$$

x		$\sim -2,27$		-1	
$f'(x)$					
f					

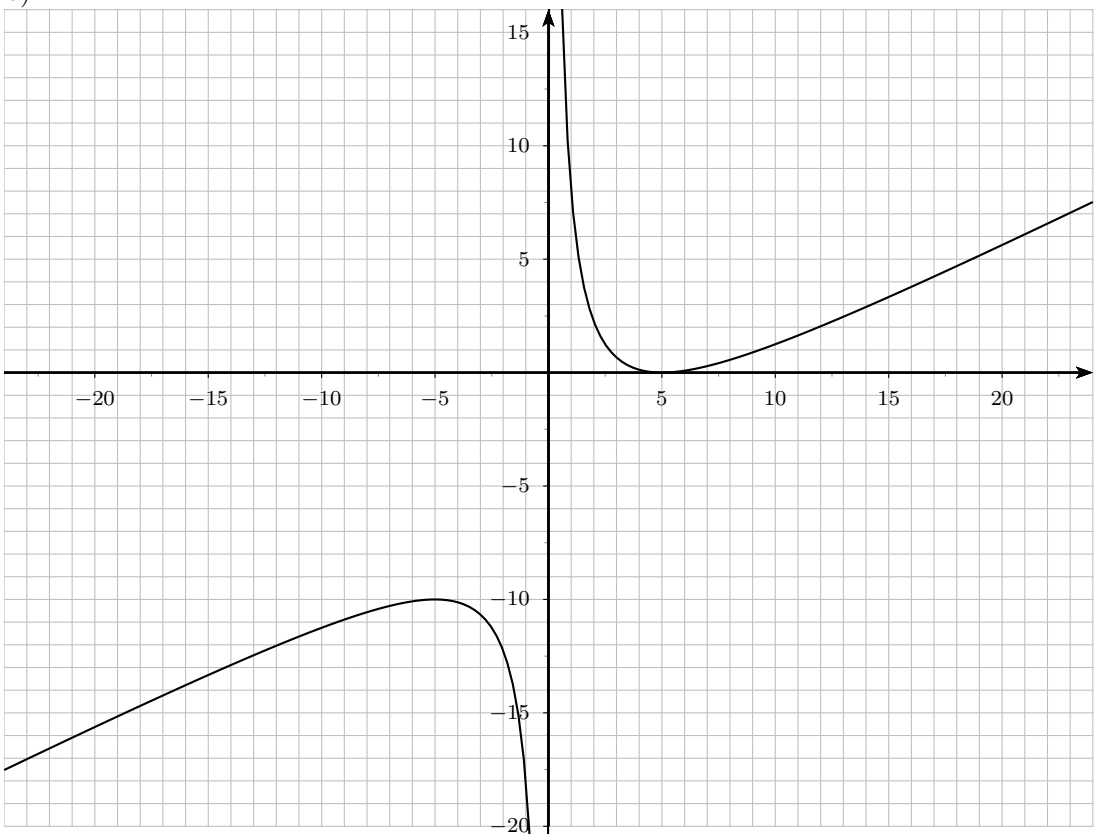


Solutions

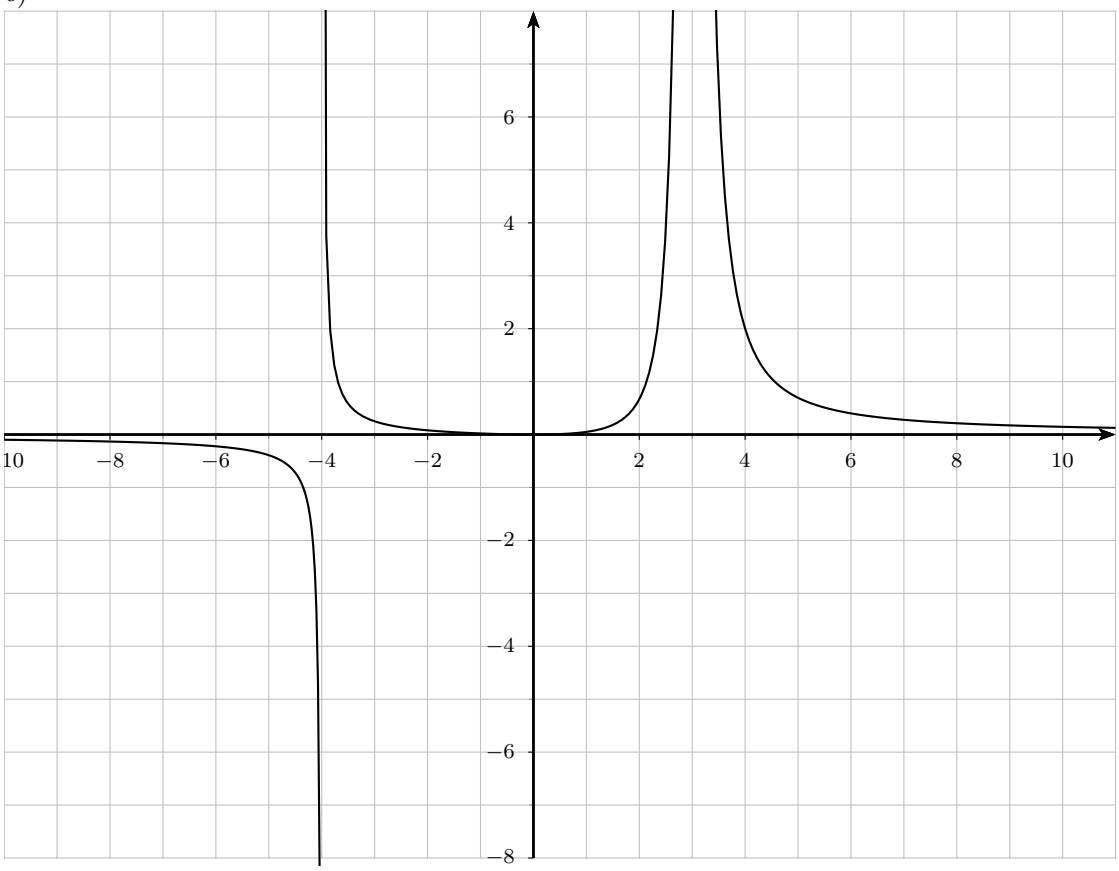
a)



b)



c)



d)