Ex 2.9.10

d) $f(x) = \dfrac{2x^2}{9 - x^2}$

1) v.i. : $(3-x)(3+x)$ → 3 ; -3 $\Rightarrow$ $ED(f) = \mathbb{R} - \{\pm 3\}$

2) zéro : 0 (2)

signe

x		-3		0		3	
f	$-$	‖	$+$	0 (2)	$+$	‖	$-$

← $f(1000) = -$

3) AV/hau : $\lim\limits_{x \to -3} \dfrac{2x^2}{9-x^2} = \dfrac{18}{0} = \infty$ $\Rightarrow$ $x = -3$ AV

$\lim\limits_{x \to 3} \dfrac{2x^2}{9-x^2} = \dfrac{18}{0} = \infty$ $\Rightarrow$ $x = 3$ AV

AH : $\lim\limits_{x \to \infty} \dfrac{2x^2}{9-x^2} = \lim\limits_{x \to \infty} \dfrac{2x^2}{-x^2} = -2$ $\Rightarrow$ $y = -2$ AH

-1

4) $f'(x) = \dfrac{4x(9-x^2) - 2x^2 \cdot (-2x)}{(9-x^2)^2} = \dfrac{36x - 4x^3 + 4x^3}{(9-x^2)^2} = \dfrac{36x}{(9-x^2)^2}$