2. b) (suite) $\ldots = \lim_{x \to \pm\infty} \dfrac{4x^3 - 2x - 4x^3 - x}{(4x^2+1) \cdot 2}$

$= \lim_{x \to \pm\infty} \dfrac{-3x}{8x^2+2} = \lim_{x \to \pm\infty} \dfrac{-3}{8x} = 0.$

$\rightarrow AO \equiv y = \frac{1}{2}x.$

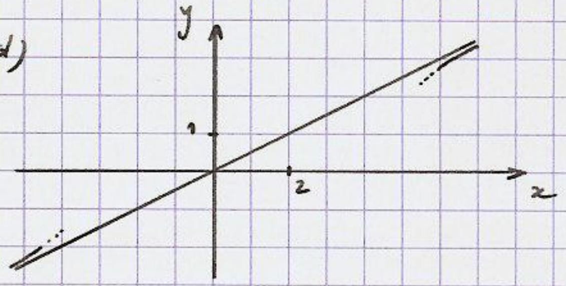
c) $f(10) \simeq 4{,}96$

$y(10) = 5$

$f(-10) \simeq -4{,}96$

$y(-10) = -5$

d)



3. Evaluer $\lim_{x \to 1} \dfrac{x - \sqrt[3]{2x-1}}{x^3 - 1}$.

x	$f(x)$	x	$f(x)$
0,9	0,10449	1,1	0,11281
0,99	0,11072	1,01	0,11146
0,999	0,11107	1,001	0,11115
0,9999	0,11111	1,0001	0,11111
⋮	⋮	⋮	⋮

On peut effectivement montrer que cette limite vaut :

$0{,}11111\ldots = \frac{1}{9}.$

4. a) $\lim_{x \to -\infty} \dfrac{3x - 11}{2 + x^2} = \text{"}\dfrac{\pm\infty}{+\infty}\text{"} = \lim_{x \to -\infty} \dfrac{3x}{x^2}$

$= \lim_{x \to -\infty} \dfrac{3}{x} = \text{"}\dfrac{3}{-\infty}\text{"} = 0.$

b) $\lim_{x \to -2} \dfrac{x^5 + 8x}{x^3 - 8} = \dfrac{-48}{-16} = 3.$

c) $\lim_{x \to 3} \dfrac{\sqrt{3x+7} - 4}{x - 3} = \text{"}\dfrac{0}{0}\text{"}$

$= \lim_{x \to 3} \dfrac{(\sqrt{3x+7} - 4) \cdot (\sqrt{3x+7} + 4)}{(x-3) \cdot (\sqrt{3x+7} + 4)}$

$= \lim_{x \to 3} \dfrac{3x + 7 - 16}{(x-3)(\sqrt{3x+7} + 4)} = \lim_{x \to 3} \dfrac{3x - 9}{(x-3)(\sqrt{3x+7} + 4)}$

$= \lim_{x \to 3} \dfrac{3 \cdot (x-3)}{(x-3) \cdot (\sqrt{3x+7} + 4)} = \dfrac{3}{8}.$