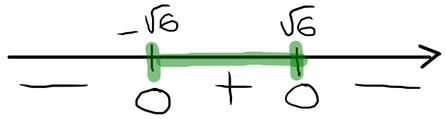
210.2

g) $f(x) = x^2\sqrt{6-x^2}$

$ED(f) = [-\sqrt{6}\ ;\ \sqrt{6}]$

cond : $6-x^2 \geq 0$

$(\sqrt{6}+x)(\sqrt{6}-x) \geq 0$



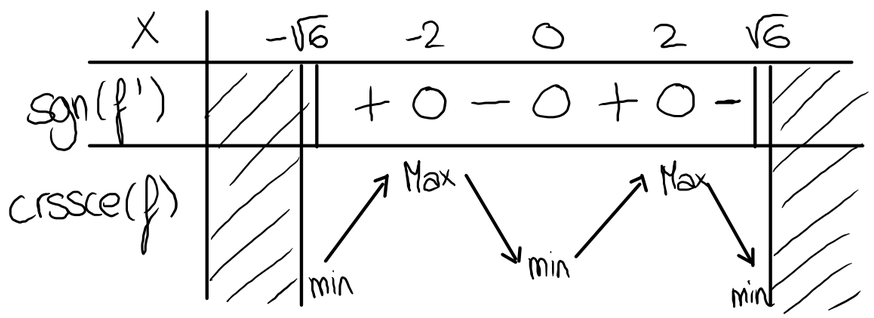
$$f'(x) = 2x\sqrt{6-x^2} + x^2 \cdot \frac{-x}{\sqrt{6-x^2}}$$

$u = x^2$ $\quad u' = 2x$

$v = \sqrt{6-x^2}$ $\quad v' = \dfrac{-2x}{2\sqrt{6-x^2}}$

$$= \frac{2x(6-x^2) - x^3}{\sqrt{6-x^2}} = \frac{-3x^3+12x}{\sqrt{6-x^2}} = \frac{-3x(x^2-4)}{\sqrt{6-x^2}} = \frac{-3x(x+2)(x-2)}{\sqrt{6-x^2}}$$

zéros : $-2, 0, 2$ et $ED(f') =]-\sqrt{6}\ ;\ \sqrt{6}[$



min $(-\sqrt{6}\ ;0)$

Max $(-2;\ 4\sqrt{2})$

min $(0;0)$

Max $(2;\ 4\sqrt{2})$

min $(\sqrt{6};0)$

2.10.7

f)

$$f'(x) = \frac{6x^2}{(x^3+1)^2}$$

$$f''(x) = \frac{-12x(2x^3-1)}{(x^3+1)^3}$$