$(kx)' = k$

$(x^2)' = 2x$

$(x^3)' = 3x^2$

$(kf)' = k \times f'$

$f(t) = 25t^2 - 150t + 3$

a) $v(t) = f'(t) = 25 \times (2t) - 150$

$v(t) = 50t - 150$

b) $a(t) = v'(t) = 50$

$a(t) = 50\ m/s^2$

c) $g = 9{,}81\ m/s^2$

l'astronaute subit $5 \times g$. Oui.

d) x_0

a

on veut à $t = 2s$.

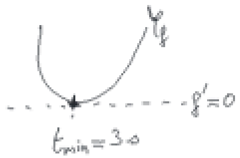
$y = f'(2)(t-2) + f(2)$

$y = -50(t-2) + (-197)$

$y = -50t + 100 - 197$

$g(t) = y = -50t - 97 \longrightarrow$ annexe $v(t)$ $a(t) = 0$

e)



$f'(t) = 50t - 150 = 0$

$t = \frac{150}{50} = 3s$

$y = f'(3)(t-3) + f(3)$

$y = 0 \times (t-3) + f(3)$

$y = -222$

$$f'(x_0) = \lim_{h \to 0} \frac{f(x_0+h) - f(x_0)}{h}$$

$x_0 = 0$

$f(x) = x^2 + 3x - 4$

$f(h) = h^2 + 3h - 4$

$f(0) = -4$

$f'(0) = 3$

$$f'(0) = \lim_{h \to 0} \frac{h^2 + 3h - 4 + 4}{h} = \lim_{h \to 0} h + 3 = 3$$

$f(x) = x^2 - 4x + 3$

$g(x) = -x^2 + 2x - 3$

$(-x)^2 = x^2$ mais $-x^2 \neq x^2$

$f'(x) = 2x - 4$

$g'(x) = -2x + 2$

Démontrer que Cf et Cg ont deux tangentes communes. en a ?

à essayer

$T_f : y = f'(a)(x-a) + f(a)$

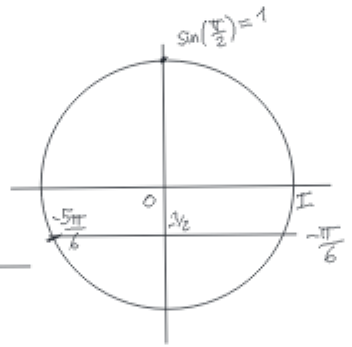
$T_g : y = g'(a)(x-a) + g(a)$

⑥ 3) suite trigo

$X_1 = 1$

$\sin(x_1) = 1$

$x_1 = \frac{\pi}{2} + 2\pi k, \ k \in \mathbb{Z}$



$2X^2 - 15X - 8 = 0$

$\Delta = 289$

$X_2 = \frac{15+17}{4}$ $\quad X_3 = \frac{15-17}{4}$

$X_2 = 8$ $\quad X_3 = -\frac{1}{2}$

$\sin(x_2) = 8$

pas de solution

$\sin(x_3) = -\frac{1}{2}$

$x_3 = -\frac{\pi}{6} + 2\pi k$ ou $x_3 = -\frac{5\pi}{6} + 2\pi k$

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⑦ Suite

$B = 10\sin(65)$ $\quad h = \overset{R}{5}\cos(65)$ $\quad$ (avec $R = 5$ cm)

$S_2 = \frac{B \times h}{2} = \frac{50\sin(65)\cos(65)}{2}$

$2S_1 = \pi R^2 \times \frac{50}{360}$

$\mathcal{A}_b = 2S_1 + S_2 \simeq 20,5 \text{ cm}^2$

$\mathcal{A}_c = \frac{\pi R^2}{2} - \mathcal{A}_b \simeq 18,8 \text{ cm}^2$

donc $\mathcal{A}_c < \mathcal{A}_b$.