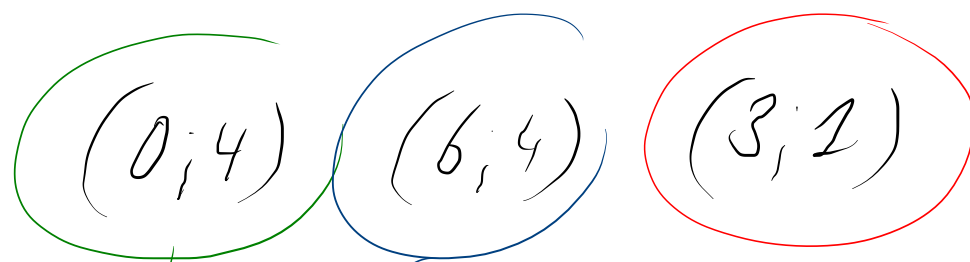


Fonctions 2019

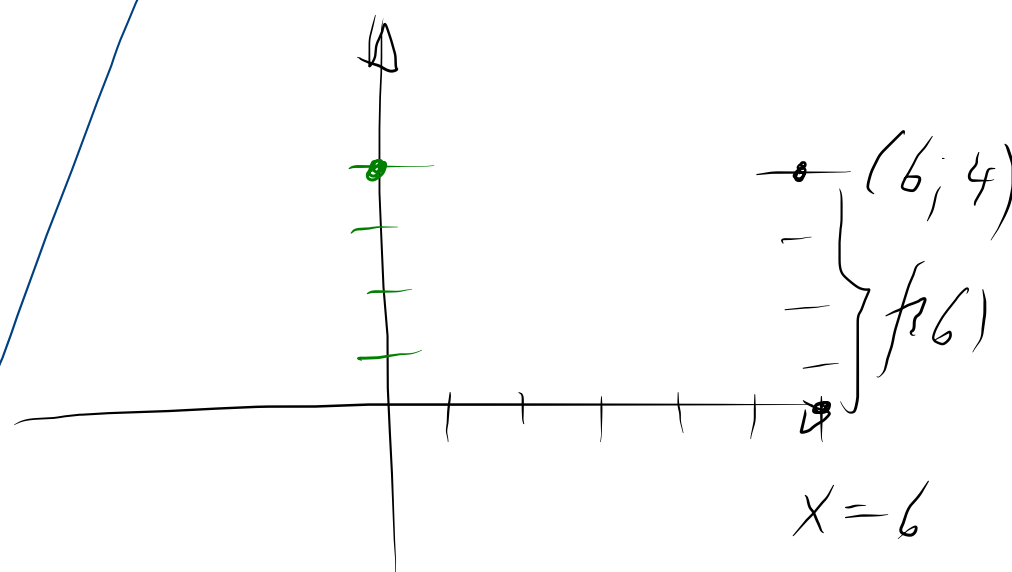
Le graphe passe par



$$f(x) = ax^2 + bx + c$$

$$f(0) = c = 4$$

$$f(6) = 4$$



$$f(x) = ax^2 + bx + 4$$

$$4 = 36a + 6b + 4$$

$$\Rightarrow b = -6a$$

$$1 = 9a + 3b + 4$$

$$\Rightarrow 9a + 3b + 3 = 0$$

$$a = \frac{1}{3} / b = -2$$

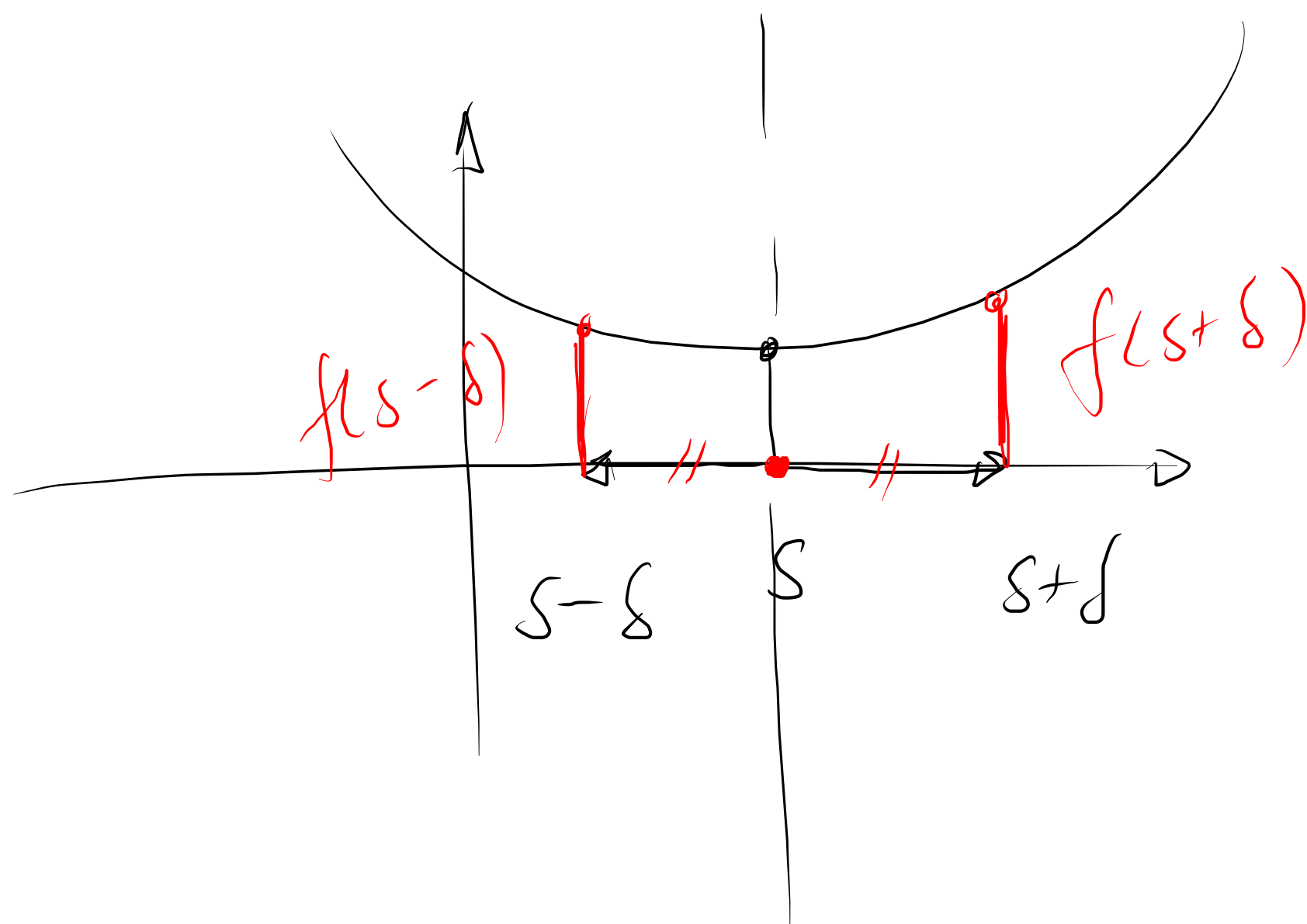
$$\Rightarrow f(x) = \frac{1}{3}x^2 - 2x + 4$$

$$a(x-s)^2 + h = f(x)$$

(s, h) est le sommet

$$a(s+s-s)^2 + h = 2s^2 + h$$

$$a(s-s-s)^2 + h = a(-s)^2 + h \\ = 2s^2 + h$$



$$2(x-s)^2 + h = f(x)$$

$$(s; h) = (3; 1)$$

$$2(x-3)^2 + 1 = f(x)$$

$$\text{par } (0; 4)$$

$$9 \cdot 2 + 1 = 4$$

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

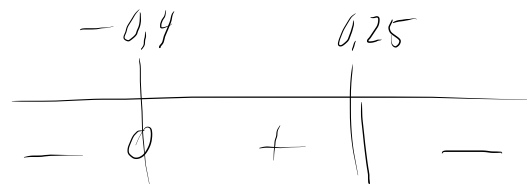
$$9 = 3$$

$$= \frac{1}{3}(x^2 - 6x + 9) + 1$$

$$2 = \frac{1}{3}$$

$$= \frac{1}{3}x^2 - 2x + 4 \quad \checkmark$$

$$f(x) = \frac{5x+2}{1-4x}$$



$$\text{D}_f = \mathbb{R} - \left\{ \frac{1}{4} \right\}$$

$$\text{Zeros: } x = -\frac{2}{5}$$

$$\boxed{A' \text{ l' } \infty} \quad \frac{5x+2}{1-4x} \xrightarrow{x \rightarrow \infty} \frac{5x}{-4x} = -\frac{5}{4}$$

$$\text{A.H. en } y = -\frac{5}{4}$$

Au voisinage de $\frac{1}{4}$:

$$\ll \frac{5 \cdot \frac{1}{4} + 2}{1 - 4 \cdot \frac{1}{4}} = \frac{3,25}{1-1} = \frac{3,25}{0} = \infty \gg$$

$$\text{A-V. en } x = \frac{1}{4}$$

$$\boxed{\text{A' gauche de } \frac{1}{4} \quad x \xrightarrow{<} \frac{1}{4} \quad \ll \frac{5 \cdot \frac{1}{4} + 2}{1 - 4 \cdot \frac{1}{4}} = \frac{3,25}{0^+} \gg}$$

$$f(x) \rightarrow +\infty$$

$$\boxed{\text{A' droite de } \frac{1}{4} \quad x \xrightarrow{>} \frac{1}{4} \quad \ll \frac{5 \cdot \frac{1}{4} + 2}{1 - 4 \cdot \frac{1}{4}} = \frac{3,25}{0^-} \gg}$$

$$f(x) \rightarrow -\infty$$

Graphie:

