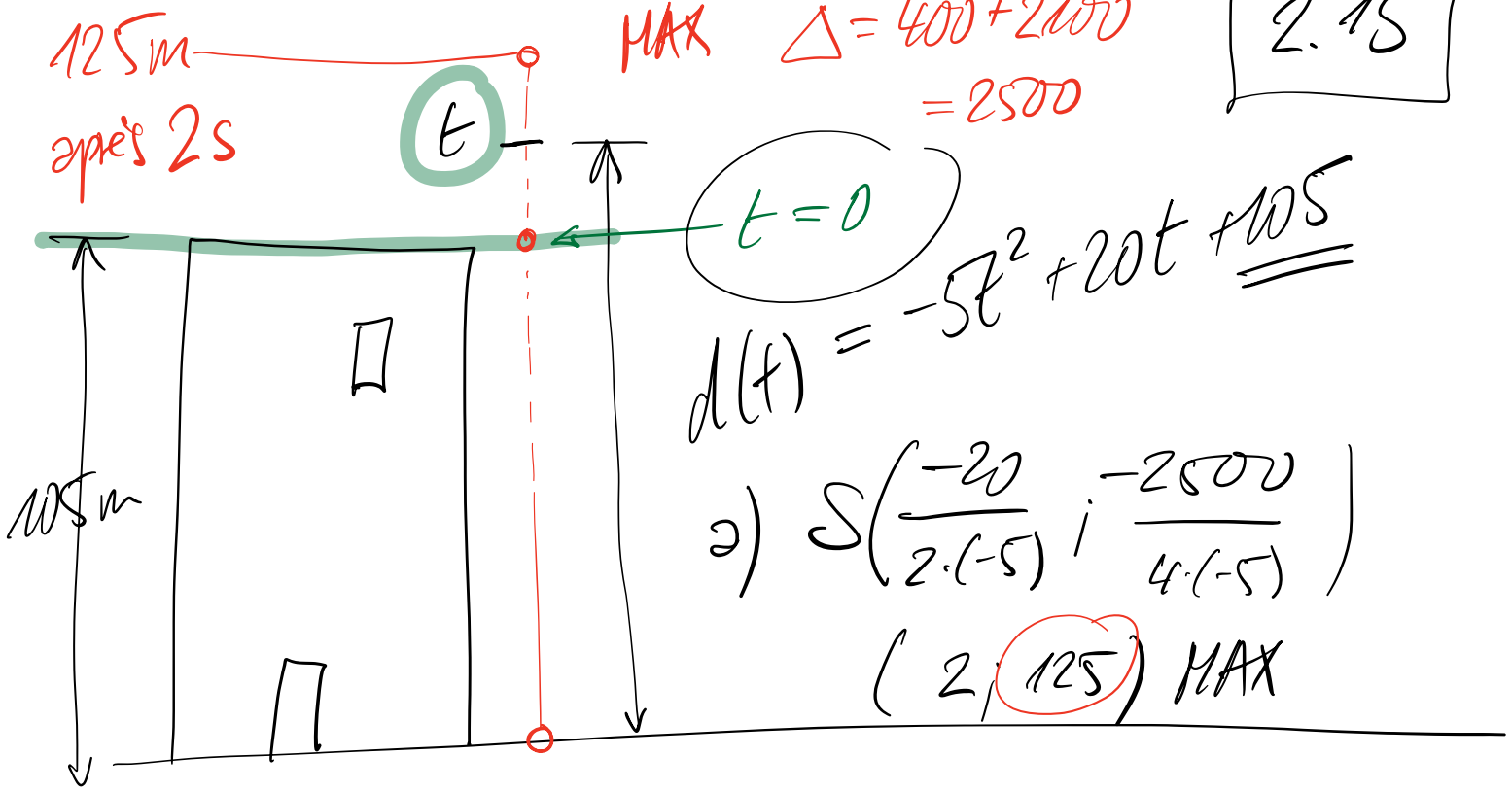
2.15



MAX $\Delta = 400 + 2000 = 2500$

$d(t) = -5t^2 + 20t + 105$

a) $S\left(\frac{-20}{2\cdot(-5)} ; \frac{-2500}{4\cdot(-5)}\right)$

$(2 ; 125)$ MAX

b) $t = 0$ $\quad d(t) = -5\cdot 0^2 + 20\cdot 0 + 105$

$= 105$

L'immeuble mesure 105 m de haut.

$$d(t) = -5t^2 + 20t + 105$$

a) MAXIMUM. $-5x^2 + 20x + 105$

$a = -5$ $b = 20$ $c = 105$

concave car $a < 0$ MAX

$$S\left(-\frac{b}{2a} ; -\frac{\Delta}{4a}\right)$$

$$\Delta = b^2 - 4ac = 20^2 - 4 \cdot (-5) \cdot 105 = 400 + 2100$$

$$= 2500$$

$$S\left(\frac{-20}{2 \cdot (-5)} ; -\frac{2500}{4 \cdot (-5)}\right)$$

$(2 ; 125)$ $t = 2s$ $d(2) = 125$

L'objet monte à 125 m de haut.

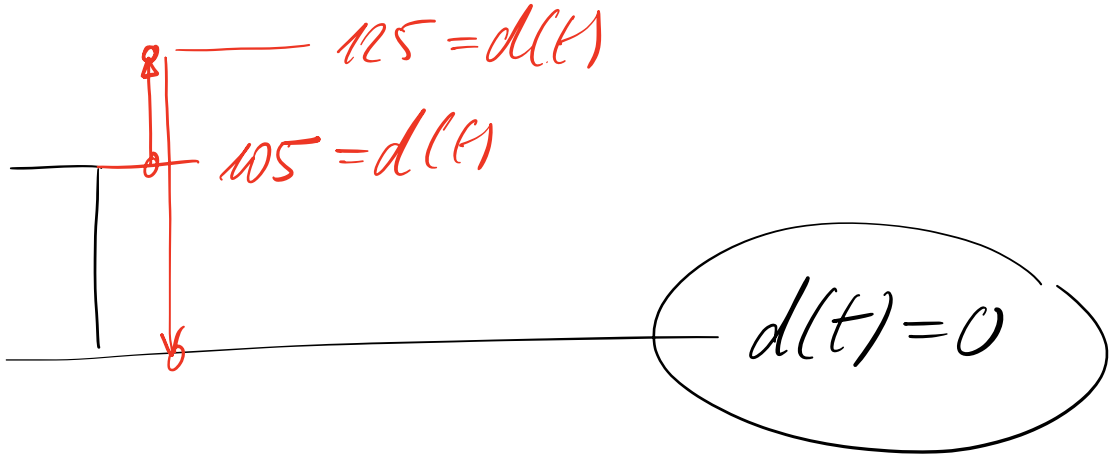
b) $t=0$ $\quad d(t) = -5t^2 + 20t + 105$

$$d(0) = -5 \cdot 0^2 + 20 \cdot 0 + 105$$

$$= 105$$

Le bâtiment mesure 105 m de haut.

c)



$$-5t^2 + 20t + 105 = 0$$

$$\Delta = 2500$$

$$t_1 = \frac{-20 + \sqrt{2500}}{2 \cdot (-5)} = \frac{-20 + 50}{-10} = -3$$

$$t_2 = \frac{-20 - 50}{-10} = 7$$

Après 7s l'objet est au sol.