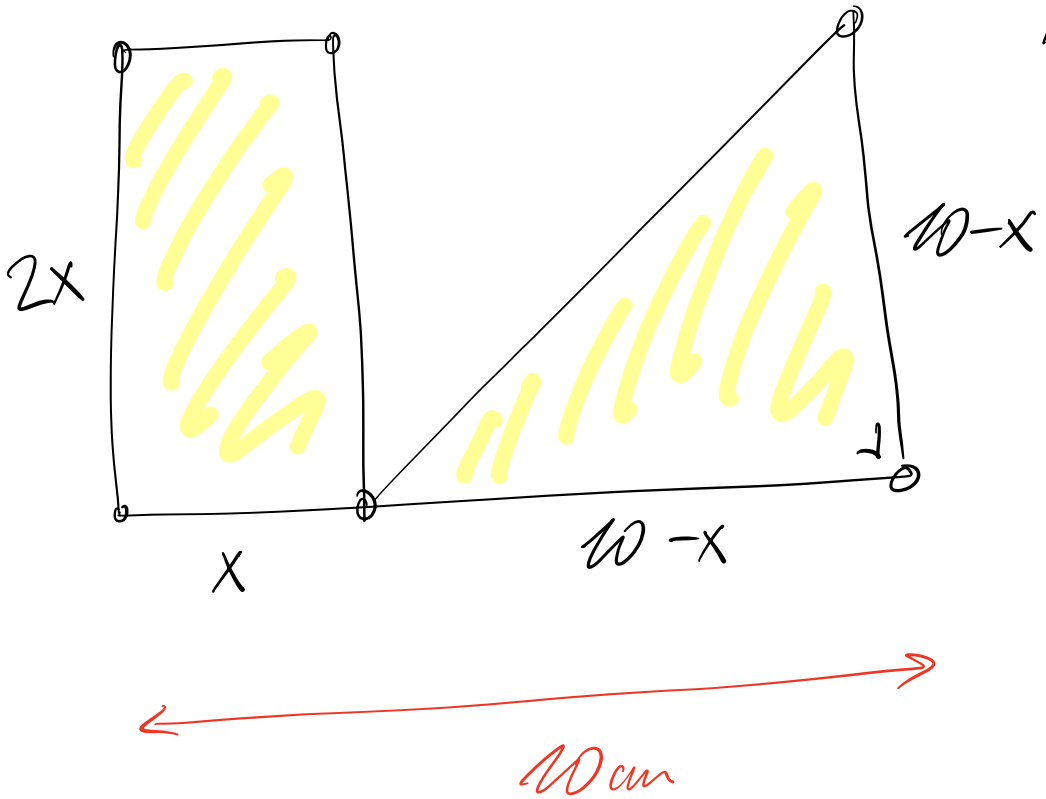
2.13



$$S(x) = 2x \cdot x + (10-x)(10-x) \cdot \frac{1}{2}$$

$$= 2x^2 + (100 - 20x + x^2) \cdot \frac{1}{2}$$

$$= 2{,}5x^2 - 10x + 50$$

convexe → min

$x = 3$ $\quad S(3) = 2{,}5 \cdot 9 - 30 + 50$

$= 22{,}5 - 30 + 50 = 42{,}5$

$S(x) = 50$ $\quad 2{,}5x^2 - 10x + 50 = 50$

$2{,}5x^2 - 10x = 0$

$$25x(x-4)=0$$

$$\boxed{x=4}$$

$S\left(\frac{10}{5}; -\frac{\Delta}{10}\right)$ $\qquad \Delta = 100 - 4 \cdot 25 \cdot 50$

$= 100 - 500 = -400$

$S(2; 40)$

La somme est min. pour $x=2$.