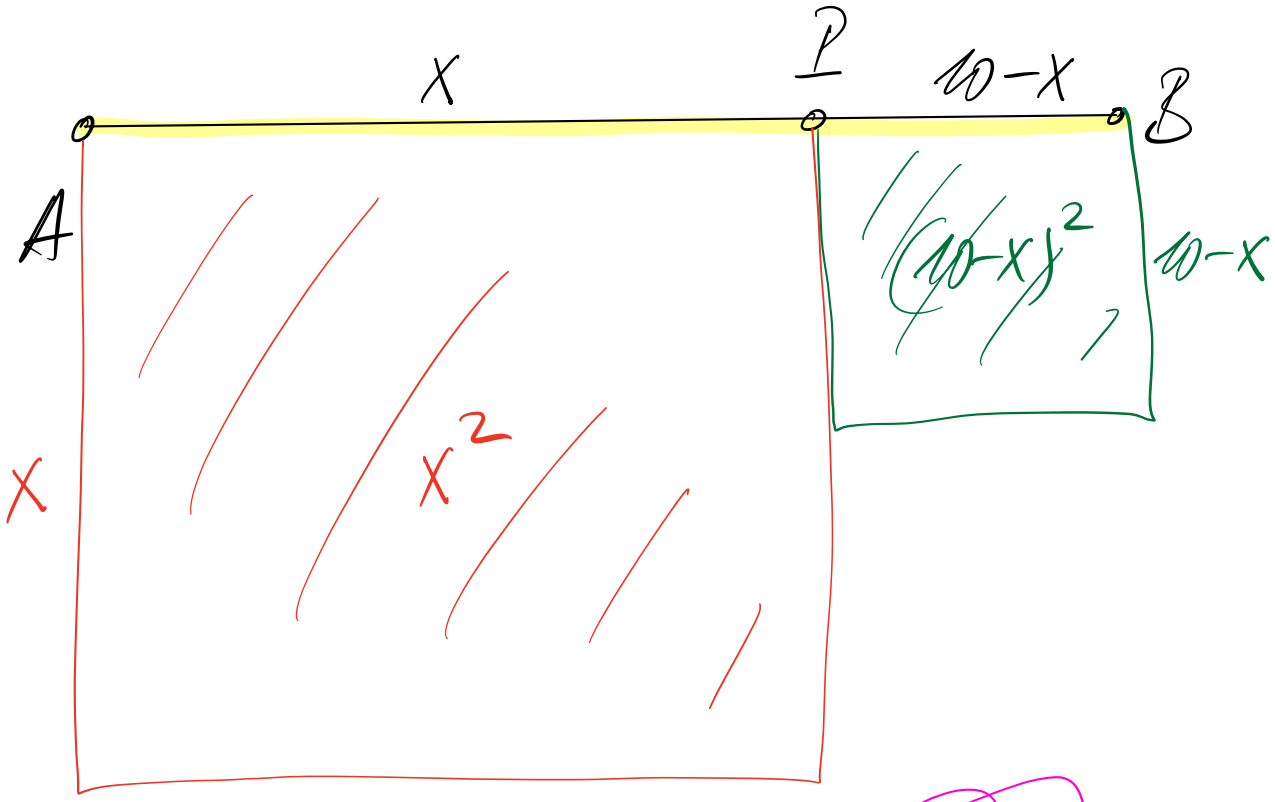
2.12



$$S(x) = x^2 + (10-x)^2 = x^2 + (10-x)(10-x)$$

$$= x^2 + 10\cdot 10 + 10\cdot(-x) + (-x)\cdot 10 + (-x)\cdot(-x)$$

$$= x^2 + 100 - 10x - 10x + x^2$$

$$= \boxed{2x^2 - 20x + 100}$$

$a = 2 > 0$ convexe

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

$S\left(-\frac{b}{2a}\right)$ MIN

$$-\frac{b}{2a} = -\frac{-20}{2 \cdot 2} = \frac{20}{4} = 5$$

$$\Delta = (-20)^2 - 4 \cdot 2 \cdot 100 = 400 - 800 = -400$$

$$-\frac{\Delta}{4a} = \frac{+400}{8} = 50$$

$\Rightarrow S(5; 50)$ MIN en $x = 5$

Il faut placer le point P à 5 cm de A.