

PREPAMATH 2018-2019

analyse septembre 2018 (p 63)

1. Soit  $f(x) = e^{-2x} - e^{-4x}$

a) domaine + asymptotes + racines

b) calculer  $f'$  et  $f''$  + extrema

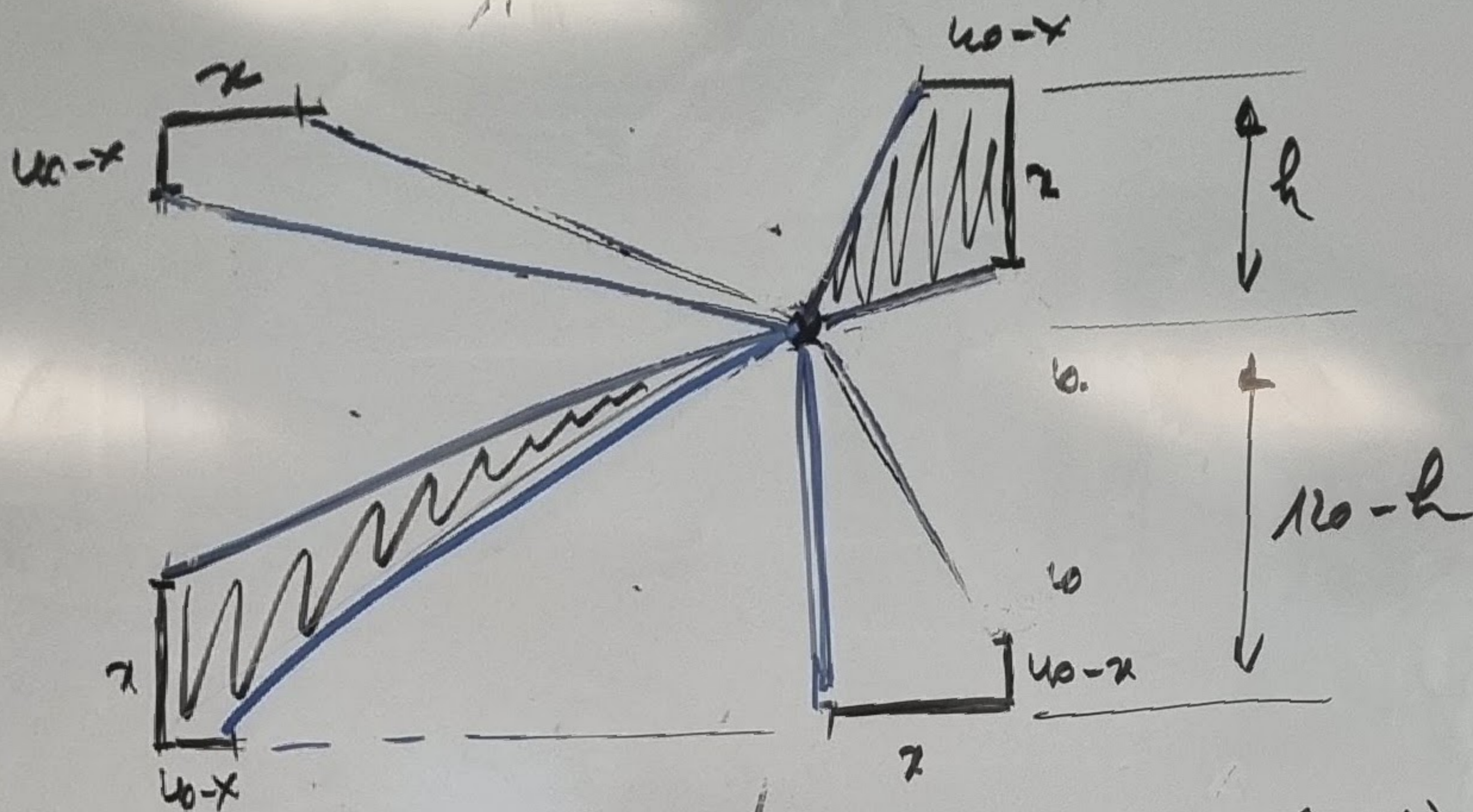
+  $\varphi'$  inflexion.

2) Calculer a)  $\int_0^{\sqrt{2\pi}} x \cdot \sin(x^2) dx$

b)  $\int_{-1}^1 x^4 \cdot |x^5| dx$

juillet 2011 (p.75)

3) Répondez  $|mx| + (x-1)^2 = 1$   
en fonct° du paramètre  $m \in \mathbb{R}$ .



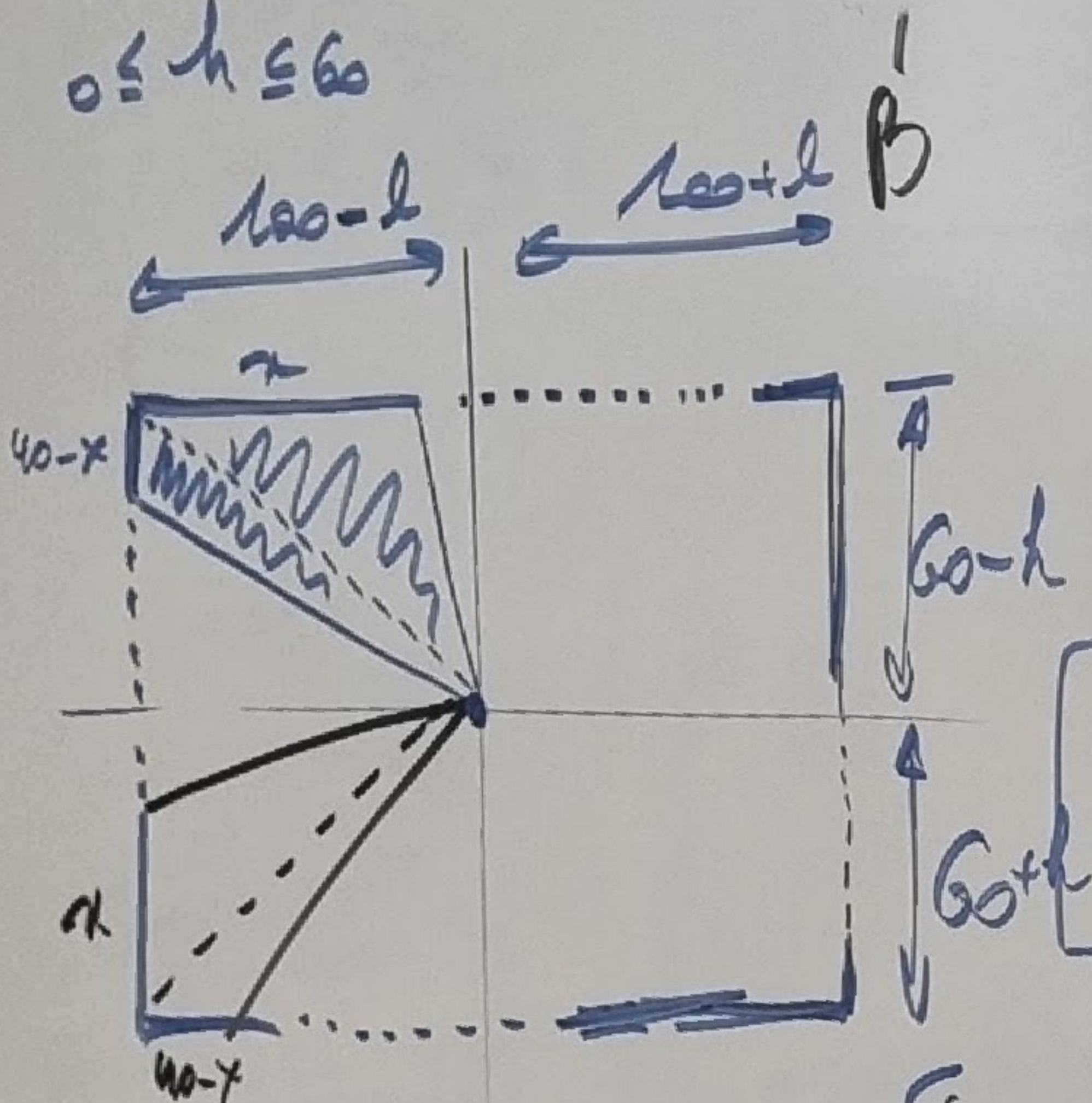
$$0 \leq l \leq 100$$

$$0 \leq h \leq 60$$

$$B = \frac{1}{2} \cdot 40 \cdot (120-h)$$

$$A = \frac{1}{2} \cdot 40 \cdot h$$

$$\text{Area Grises} - \text{Area Blancas} = \frac{1}{100} \text{ area tot.}$$



$$2400 + 40x - 4000 + 40x = \frac{1}{100} \times 120 \times 200$$

$$80x - 1600 = 240 \iff x = 1840/80$$

$$184/8 = 23$$

$$\text{"area blanca"} = 2 \times \left[ \frac{1}{2} \cdot 100 \cdot (40-x) + \left( \frac{1}{2} \cdot 60 \cdot r \right) \right] = 100(40-x) + 60r$$

$$= 4000 - 40x$$

$$\text{"area gris"} = 2 \times \left[ \frac{1}{2} \cdot 100 \cdot r + \frac{1}{2} \cdot (40-x) \cdot 60 \right] = 100r + 2400 - 60x$$

$$= 2400 + 40x$$

CA

$$l=0$$

$$h=0$$