

$$f(x) = -x^2 + 2x + 4 \quad (\text{FUNCIÓN CUADRÁTICA CONVEXA})$$

$$D(f) = \mathbb{R}$$



- CORTE CON EJE X ($f(x)=0$)

$$-x^2 + 2x + 4 = 0$$

$$x = \frac{-2 \pm \sqrt{(2)^2 - 4 \cdot (-1) \cdot 4}}{2 \cdot (-1)} = \frac{-2 \pm \sqrt{20}}{-2} = \begin{cases} -1'24 \\ 3'24 \end{cases}$$

$$(-1'24, 0) \text{ y } (3'24, 0)$$

- CORTE CON EJE Y ($x=0$)

$$f(0) = 4 \quad (0, 4)$$

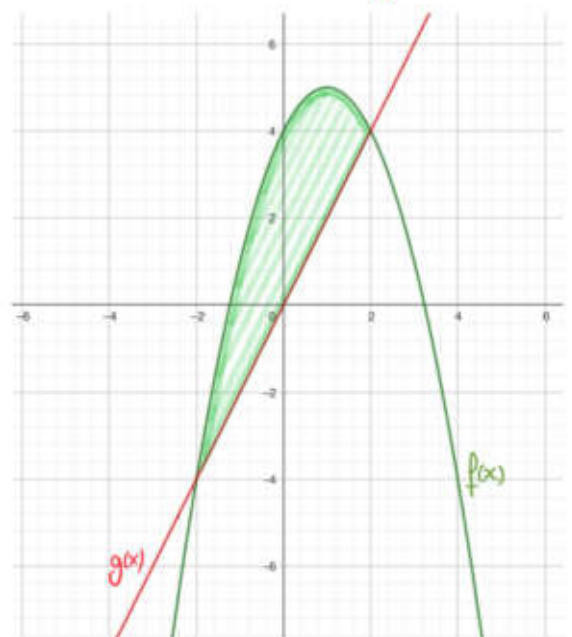
- EXTREMO

$$f'(x) = -2x + 2 \implies -2x + 2 = 0 \implies x = 1 \quad f(1) = 5$$

$$(1, 5)$$

$$g(x) = 2x \quad (\text{FUNCIÓN LINEAL CRECIENTE})$$

x	y
0	0
2	4



LÍMITES DE INTEGRACIÓN

$$\begin{aligned}f(x) &= g(x) \\ -x^2 + 2x + 4 &= 2x \\ -x^2 + 4 &= 0 \\ x^2 &= 4 \\ x &= \pm 2\end{aligned}$$

ÁREA

$$\begin{aligned}\int_{-2}^2 (f(x) - g(x)) dx &= \\ \int_{-2}^2 (-x^2 + 4) dx &= \\ -\frac{x^3}{3} + 4x \Big|_{-2}^2 &= \end{aligned}$$

$$= \left(-\frac{2^3}{3} + 4 \cdot 2 \right) - \left(-\frac{(-2)^3}{3} + 4 \cdot (-2) \right) = 10'67 \text{ Km}^2$$

PRECIO TERRENO

$$12000000 \cdot 10'67 \cdot \frac{9}{10} = \underline{115236.000 \text{ €}}$$

$\downarrow \quad \quad \downarrow \quad \quad \downarrow$
 $\text{€ / Km}^2 \quad \text{Km}^2 \quad \text{NO PAGA UNA PARTE}$