

$$f(x) = x^3 + 6x^2 - x - 30$$

$$D = \mathbb{R}$$

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

$$x^3 + 6x^2 - x - 30 = 0$$

$$\begin{array}{r|rrrr} & 1 & 6 & -1 & -30 \\ -5 & & -5 & -5 & 30 \\ \hline & 1 & 1 & -6 & 0 \end{array} \quad \boxed{\text{RUFFINI}}$$

$$x^2 + x - 6 = 0$$

$$x = \frac{-1 \pm \sqrt{1^2 - 4 \cdot 1 \cdot (-6)}}{2 \cdot 1} = \frac{-1 \pm 5}{2} = \begin{matrix} \nearrow -3 \\ \searrow 2 \end{matrix}$$

CORTES EJE X $\Rightarrow (-5, 0); (-3, 0); (2, 0)$

CORTE CON EJE Y ($x=0$)

$$f(0) = -30$$

CORTE EJE Y $\Rightarrow (0, -30)$

$$f'(x) = 3x^2 + 12x - 1$$

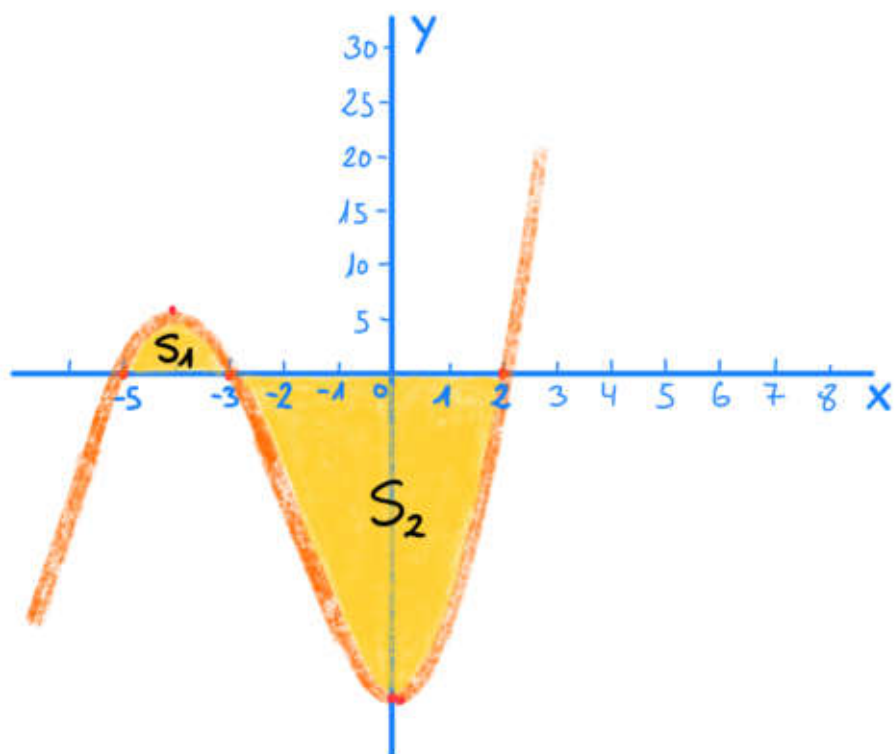
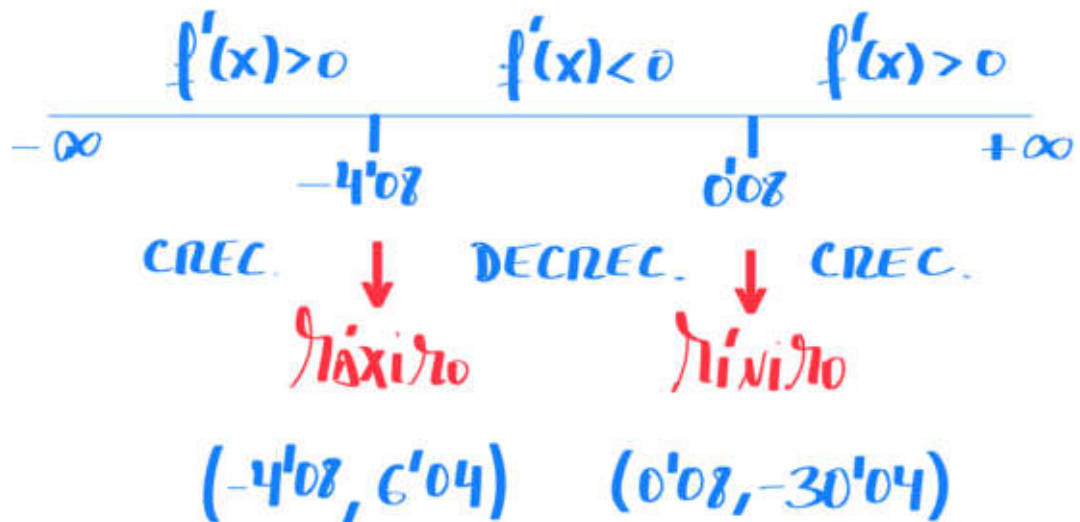
$$3x^2 + 12x - 1 = 0$$

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$$x = \frac{-12 \pm \sqrt{(12)^2 - 4 \cdot 3 \cdot (-1)}}{2 \cdot 3} = \frac{-6 \pm \sqrt{156}}{6} =$$

$$= \frac{-12 \pm 12'49}{6} = \begin{cases} 0'08 \\ -4'08 \end{cases}$$

ΜΟΝΟΤΟΝΙΑ



$$\begin{aligned}
 S_1 &= \int_{-5}^{-3} f(x) dx = \left[\frac{x^4}{4} + \frac{6x^3}{3} - \frac{x^2}{2} - 30x \right]_{-5}^{-3} = \\
 &= \left(\frac{(-3)^4}{4} + 2(-3)^3 - \frac{(-3)^2}{2} - 30(-3) \right) - \\
 &\quad \left(\frac{(-5)^4}{4} + 2(-5)^3 - \frac{(-5)^2}{2} - 30(-5) \right) = \\
 &= 51'75 - 43'75 = 8 \text{ m}^2
 \end{aligned}$$

$$\begin{aligned}
 S_2 &= \left| \int_{-3}^2 f(x) dx = \left[\frac{x^4}{4} + \frac{6x^3}{3} - \frac{x^2}{2} - 30x \right]_{-3}^2 \right| = \\
 &= \left| \left(\frac{(2)^4}{4} + 2(2)^3 - \frac{(2)^2}{2} - 30(2) \right) - \right. \\
 &\quad \left. \left(\frac{(-3)^4}{4} + 2(-3)^3 - \frac{(-3)^2}{2} - 30(-3) \right) \right| = \\
 &= \left| -42 - 51'75 \right| = 93'75 \text{ m}^2
 \end{aligned}$$

$$S = S_1 + S_2 = 101'75 \text{ m}^2$$

$101'75 \cdot 6500 = 661375 \text{ €} \rightarrow \text{VALOR TERRENO}$

SAÚL NO PUEDE COMPRAR EL TERRENO
PORQUE LE FALTAN 61375 €