

$$c) f(x) = -x^4 + 6x^3 - 9x^2$$

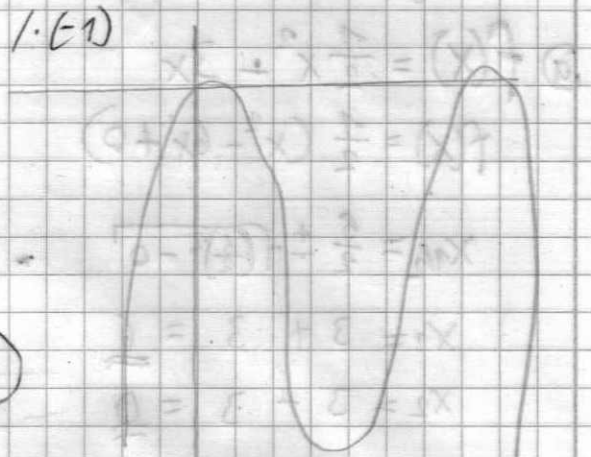
$$f(x) = x^2(-x^2 + 6x - 9) \quad | : (-1)$$

$$0 = x^2 - 6x + 9$$

$$x_{3/4} = \frac{6}{2} \pm \sqrt{\left(\frac{-6}{2}\right)^2 - 9}$$

$$x_{3/4} = \frac{6}{2} \pm \sqrt{0}$$

$$x_1 = 0 \quad x_2 = 0 \quad x_3 = 3 \quad x_4 = 3$$



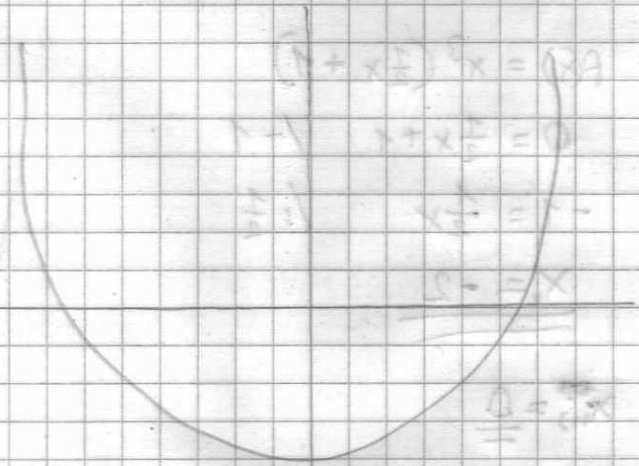
$$\begin{aligned} \int_0^3 f(x) &= -x^4 + 6x^3 - 9x^2 \, dx = \left[-\frac{1}{5}x^5 + \frac{3}{2}x^4 - \frac{3}{2}x^3 \right]_0^3 \\ &\Rightarrow \left(-\frac{1}{5} \cdot 3^5 + \frac{3}{2} \cdot 3^4 - \frac{3}{2} \cdot 3^3 \right) - \left(-\frac{1}{5} \cdot 0^5 + \frac{3}{2} \cdot 0^4 - \frac{3}{2} \cdot 0^3 \right) \\ &= -17,1 - 0 \\ &= \underline{\underline{-17,1 \text{ FE}}} \end{aligned}$$

$$d) f(x) = \frac{1}{2}x^2 - \frac{1}{2}x - 3$$

$$f(x) = \frac{1}{2}(x^2 - x - 6)$$

$$x_{1/2} = \frac{1}{2} \pm \sqrt{\left(\frac{-1}{2}\right)^2 + 6}$$

$$x_1 = 3 \quad x_2 = -2$$



$$\begin{aligned} \int_{-2}^3 f(x) &= \frac{1}{2}x^2 - \frac{1}{2}x - 3 \, dx = \left[\frac{0,5}{3}x^3 - \frac{0,5}{2}x^2 - 3x \right]_{-2}^3 \\ &\Rightarrow \left(\frac{0,5}{3} \cdot 3^3 - \frac{0,5}{2} \cdot 3^2 - 3 \cdot 3 \right) - \left(\frac{0,5}{3} \cdot (-2)^3 - \frac{0,5}{2} \cdot (-2)^2 - 3 \cdot (-2) \right) \\ &= (-38,08) - (-13,77) \\ &= \underline{\underline{51,25 \text{ FE}}} \end{aligned}$$