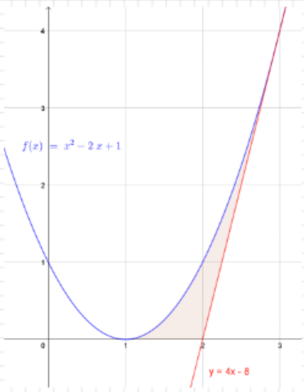
$\boxed{29}$ $y=x^2-2x+1 \longrightarrow \begin{cases} \text{VÉRTICE}: (1,0) \\ \text{Puntos corte ejes}: (0,1), (1,0) \end{cases}$



Recta tangente a $y=x^2-2x+1$ en $(3,4)$:

$$y' = 2x-2 \underset{x=3}{\Longrightarrow} y'=4$$

$$y-4=4(x-3) \Rightarrow y=4x-8$$

Intersección de la recta tangente con OX:

$$4x-8=0 \Rightarrow x=2$$

$$\text{ÁREA} = \int_1^2 x^2-2x+1\,dx + \int_2^3 x^2-2x+1-(4x-8)\,dx$$

$$\text{ÁREA} = \int_1^3 (x-1)^2\,dx - \int_2^3 4x-8\,dx = \left[\frac{(x-1)^3}{3}\right]_1^3 - \left[2x^2-8x\right]_2^3 =$$

$$= \frac{8}{3} - \left(2\cdot3^2-8\cdot3-(2\cdot2^2-8\cdot2)\right) = \frac{8}{3} - (18-24-8+16) =$$

$$= \frac{8}{3} - 2 = \frac{2}{3}\ u^2$$

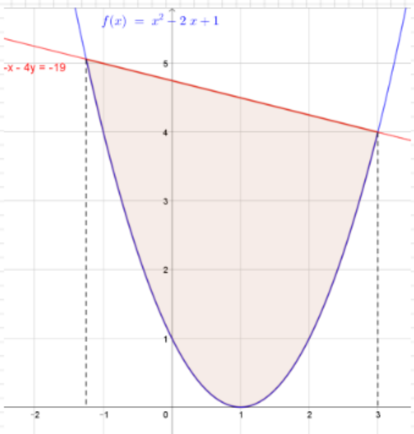
b) Recta normal: $y-f(3) = -\frac{1}{f'(3)}(x-3)$

$$y-4 = -\frac{1}{4}(x-3) \Rightarrow y = \frac{-x+19}{4}$$

Intersección de la recta normal y la parábola

$$\begin{cases} y = x^2-2x+1 \\ y = \dfrac{-x+19}{4} \end{cases} \quad \frac{-x+19}{4} = x^2-2x+1 \Rightarrow -x+19 = 4x^2-8x+4 \Rightarrow$$

$$\Rightarrow 4x^2-7x-15=0 \Rightarrow x = \frac{7\pm\sqrt{49+240}}{8} = \frac{7\pm17}{8} = \begin{cases} 3 \\ -\frac{5}{4} \end{cases}$$



$$\text{ÁREA} = \int_{-5/4}^{3} \frac{-x+19}{4} - (x^2-2x+1)\,dx = \int_{-5/4}^{3} -\frac{1}{4}x + \frac{19}{4} - (x-1)^2\,dx =$$

$$= \left[-\frac{1}{8}x^2 + \frac{19}{4}x - \frac{(x-1)^3}{3}\right]_{-5/4}^{3} =$$

$$= -\frac{9}{8} + \frac{57}{4} - \frac{8}{3} - \left(-\frac{25}{128} - \frac{95}{16} + \frac{243}{64}\right) = \frac{4913}{384}\ u^2$$