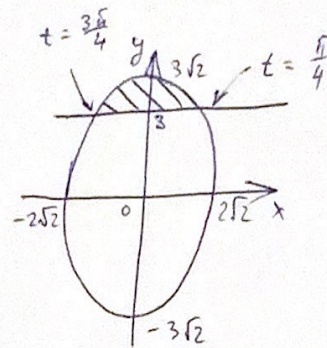


~ 13.

$$\begin{cases} x = 2\sqrt{2} \cos t \\ y = 3\sqrt{2} \sin t \\ y = 3 \quad (y \geq 3) \end{cases}$$



$$3\sqrt{2} \sin t = 3$$

$$\sin t = \frac{1}{\sqrt{2}}$$

$$t = \frac{\pi}{4}, t = \frac{3\pi}{4}$$

$$\begin{aligned} S &= \int_{t_1}^{t_2} (y(t) - 3) dx(t) = \int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} (3\sqrt{2} \sin t - 3) d(2\sqrt{2} \cos t) = - \int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} (3\sqrt{2} \sin t - 3) 2\sqrt{2} \sin t dt = \\ &= -6\sqrt{2} \int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} (\sqrt{2} \sin t - 1) \sin t dt = -6\sqrt{2} \int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} \sqrt{2} \sin^2 t dt - 6\sqrt{2} \cos t \Big|_{\frac{\pi}{4}}^{\frac{3\pi}{4}} = \\ &= -12 \int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} \sin^2 t dt - 6\sqrt{2} \cos t \Big|_{\frac{\pi}{4}}^{\frac{3\pi}{4}} = -6 \int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} (1 - \cos 2t) dt - 6\sqrt{2} \cos t \Big|_{\frac{\pi}{4}}^{\frac{3\pi}{4}} = \\ &= -6t + 3 \sin 2t - 6\sqrt{2} \cos t \Big|_{\frac{\pi}{4}}^{\frac{3\pi}{4}} = -6 \cdot \frac{3\pi}{4} + 3 \sin \frac{3\pi}{2} - 6\sqrt{2} \cos \frac{3\pi}{4} + 6 \cdot \frac{\pi}{4} - \\ &\quad - 3 \sin \frac{\pi}{2} + 6\sqrt{2} \cos \frac{\pi}{4} = -3\pi + 6\sqrt{2} \cdot \frac{\sqrt{2}}{2} = \underline{\underline{-3\pi + 6}}. \end{aligned}$$

Orber: $-3\pi + 6$.