DATA

e) $\log_{\sqrt{2}} \{2 \cdot \log_3 [1 + \log_4 (x+3)]\} = 2$ → (Logaritmando)

$(\sqrt{2})^2 = 2 \cdot \log_3 [1 + \log_4 (x+3)]$

$2 = 2 \cdot \log_3 [1 + \log_4 (x+3)] \rightarrow \frac{2}{2} = \frac{2 \cdot \log_3 [1 + \log_4 (x+3)]}{2}$

$\rightarrow \log_3 [1 + \log_4 (x+3)] = 1 \rightarrow 3^1 = 1 + \log_4 (x+3)$

$2 = \log_4 (x+3) \rightarrow 4^2 = x+3 \rightarrow x+3 = 16 \rightarrow x = 13$

$S = \{13\}$ //

---

f) $\log_3 [1 + 2 \cdot \log_2 (3 - \log_4 x^2)] = 1$

(logaritmando)

$1 + 2 \cdot \log_2 (3 - \log_4 x^2) = 3^1 \rightarrow$

$\frac{2 \cdot \log_2 (3 - \log_4 x^2)}{2} = \frac{3-1}{2} \rightarrow$

$\log_2 (3 - \log_4 x^2) = 1 \rightarrow 2^1 = 3 - \log_4 x^2 \rightarrow$

$-\log_4 x^2 = -1 \rightarrow -1 \cdot \log_4 x^2 = -1 \rightarrow$

$\log_4 (x^2)^{-1} = -1 \rightarrow \log_4 x^{-2} = -1 \rightarrow 4^{-1} = x^{-2}$

$\left(\frac{1}{x}\right)^2 = \frac{1}{4} \rightarrow \frac{1}{x^2} = \frac{1}{4} \rightarrow 4 = x^2 \rightarrow x = \pm\sqrt{4}$

$x = 2$ ou $x = -2$