

Δ3. İstenenleri için $f'(x_0) = \frac{\alpha}{x_0} = -2$ ve $2x_0 + f(x_0) = 1 \Rightarrow$

$$2x_0 + \alpha \ln x_0 + 2 = 1 \Rightarrow \quad 2 \cdot \left(-\frac{\alpha}{2}\right) + \alpha \cdot \ln\left(-\frac{\alpha}{2}\right) + 1 = 0$$
$$x_0 = -\frac{\alpha}{2}$$

$$\Rightarrow -\alpha + \alpha \cdot (\ln(-\alpha) - \ln 2) + 1 = 0 \Rightarrow -1 + \ln(-\alpha) - \ln 2 + \frac{1}{\alpha} = 0 \Rightarrow$$

$$\ln(-\alpha) = 1 + \ln 2 - \frac{1}{\alpha}.$$