

ΕΝΔΕΙΚΤΙΚΕΣ ΑΠΑΝΤΗΣΕΙΣ

Θέμα 4^ο

$$4.1 \quad R_1 = \rho_{\text{cu}} \cdot \frac{l}{S} \Rightarrow R_1 = 0,017\Omega \frac{\text{mm}^2}{\text{m}} \cdot \frac{1000\text{m}}{1\text{mm}^2} \Rightarrow R_1 = 17\Omega$$

4.2

$$R_2 = R_1 + \alpha(\theta_2 - \theta_1) \cdot R_1 \Rightarrow \alpha(\theta_2 - \theta_1) \cdot R_1 = R_2 - R_1 \Rightarrow \theta_2 - \theta_1 = \frac{R_2 - R_1}{\alpha \cdot R_1} \Rightarrow$$

$$\Rightarrow \theta_2 = \theta_1 + \frac{R_2 - R_1}{\alpha \cdot R_1} \Rightarrow \theta_2 = 20^\circ\text{C} + \frac{18,7\Omega - 17\Omega}{0,004 \frac{1}{^\circ\text{C}} \cdot 17\Omega} \Rightarrow \theta_2 = 20^\circ\text{C} + \frac{1,7\Omega}{0,004 \frac{1}{^\circ\text{C}} \cdot 17\Omega} \Rightarrow$$

$$\Rightarrow \theta_2 = 20^\circ\text{C} + \frac{0,1}{0,004 \frac{1}{^\circ\text{C}}} \Rightarrow \theta_2 = 20^\circ\text{C} + \frac{0,100}{0,004} \cdot ^\circ\text{C} \Rightarrow \theta_2 = 20^\circ\text{C} + 25^\circ\text{C} \Rightarrow \theta_2 = 45^\circ\text{C}$$