

Ex 17.5 p541

P_t $R_i = 50 \Omega$ $T_i = 20^\circ C$

I_n $R_f = 76.8 \Omega$ $T_f = ?$

α in table p 538

$\alpha = 3.92 \times 10^{-3} \text{ } ^\circ C^{-1} \text{ or } \frac{1}{^\circ C}$

$R_f = R_i [1 + \alpha (T_f - T_i)]$

$\frac{R_f}{R_i} = 1 + \alpha (T_f - T_i)$ ←

$\frac{\frac{R_f}{R_i} - 1}{\alpha} = \frac{\alpha (T_f - T_i)}{\alpha}$ ←

$\frac{R_f}{R_i} - 1 = \alpha (T_f - T_i)$

$\frac{\frac{R_f}{R_i} - 1}{\alpha} + T_i = T_f$

$\frac{76.8}{50} - 1 + 20 = T_f$

$156.7^\circ C = T_f$

$\rho = \rho_o [1 + \alpha (T_f - T_i)]$
↑ ↑ ↑ ↑
final initial (alpha) °C
 thermal
 resistivity

$R_f = R_i [1 + \alpha (T_f - T_i)]$

solve for variable
don't put in #'s yet

(())
[()]

be careful, solve
for var. /st

substitute #'s

get answer

