64. A least squares fit of the data gives $R = \frac{537}{5} + \frac{1111}{1750}T$ with T in degrees Celsius.

(a) At $T = 20°\text{C}$, our expression gives $R = \frac{21017}{175} \approx 120\,\Omega$.

(b) At $T = 0°\text{C}$, our expression gives $R = \frac{537}{5} \approx 107\,\Omega$.

(c) Defining α_R by

$$\alpha_R = \frac{R - R_{20}}{R_{20}\,(T - 20°\text{C})}$$

then we are effectively requiring $\alpha_R R_{20}$ to equal the $\frac{1111}{1750}$ factor in our least squares fit. This implies that $\alpha_R = 1111/210170 = 0.00529/\text{C}°$ if $R_{20} = \frac{21017}{175} \approx 120\,\Omega$ is used as the reference.

(d) Now we define α_R by

$$\alpha_R = \frac{R - R_0}{R_0\,(T - 0°\text{C})}\ ,$$

which means we require $\alpha_R R_0$ to equal the $\frac{1111}{1750}$ factor in our least squares fit. In this case, $\alpha_R = 1111/187950 = 0.00591/\text{C}°$ if $R_0 = \frac{537}{5} \approx 107\,\Omega$ is used as the reference.

(e) Our least squares fit expression predicts $R = 96473/350 \approx 276\,\Omega$ at $T = 265°\text{C}$.