Homework 3 solution

(1) $R \sim \hbar / e^2 \approx 4.1\ k\Omega$

In an arbitrary 2D system $\sigma \sim \frac{e^2}{\hbar}(k_F l)$

„Minimal conductivity" implies $k_F l \sim 1$

(2) $d = \sqrt{\frac{2\Phi_0}{\pi \Delta B}} \approx 1.9\ \mu m$

ΔB is the period of oscillations, inferred from the figure

(3) $\varkappa = \frac{\pi^2}{9} v_F^2 \tau\, T\, \nu_F$

See Abrikosov, chapter 3