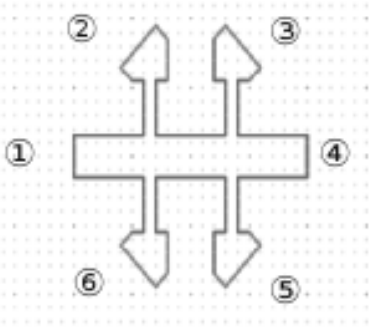
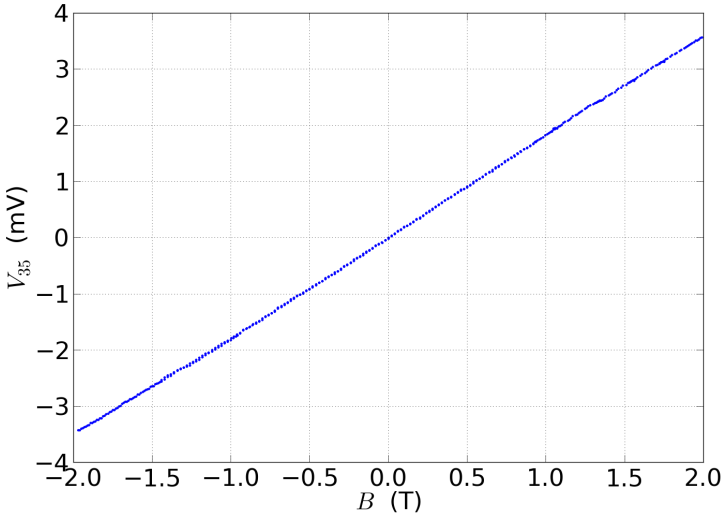
(4 pts) A poor quality graphene sample is prepared with the shape shown below. The numbered features (pins) are considered to be perfect contacts. Conventional current injected at pin 1 and extracted at pin 4 is 3μA. Pins 2 and 3 contact the horizontal bar separated by 8 μm, and the voltage measured across pins 2 relative to pin 3 is 20 mV. Pin 3 and 5 contact the bar separated by 2 μm. The voltage measured at pin 3 relative to pin 5 is plotted vs a magnetic field applied normal and into the page. Assuming one type carrier, what is the mobility, sheet carrier density, and carrier type (justify your answer).





q	1.6×10^{-19} C	electron charge
ϵ_o	8.85×10^{-14} F/cm	permittivity of free space
K_s	11.8 (Si)	relative dielectric constant
K_o	3.9 (SiO_2)	relative dielectric constant
k_B	8.617×10^{-5} eV/K	Boltzman's constant
h	6.63×10^{-34} J s	Planck constant
m_o	9.11×10^{-31} kg	electron mass
k_BT/q	0.0259 V at 300 K	thermal voltage
c	3×10^{8} m/s	speed of light