Modern MOSFETs deliver an on-current of about 1 milliamp per micrometer. Under on-state conditions, the number of inversion layer electrons at the VS is about $10^{13}$ per cm$^2$.

1) What would be the on-current of a ballistic MOSFET with the same inversion layer density? (The appropriate effective mass to use is $m^* = 0.19 m_0$.)