Quiz 19.2A

A 325-gram puck with an unknown charge q slides across a rough horizontal surface in the +x direction with an initial velocity of 23.0 m/s. The coefficient of kinetic friction between the puck and the surface is 0.181. There is a uniform electric field here in which the puck is immersed with a magnitude of 57100 Volts/meter pointing in the +x direction. After moving 92.1 meters, the puck slides to a stop.

The only forces present are kinetic friction, electric, gravity and normal forces. For each answer (a) - (d), but sure you carefully consider the sign of your answer and indicate the correct sign (it is worth just as much as the numerical value of your answer). During the time interval that the puck was in motion…

a) How much work was done by the force of kinetic friction?
b) How much does the kinetic energy of the puck change
c) How much work was done by the electric force?
d) What is the charge on the puck?