A magnetic field $B = 0.002\frac{\text{N·s}}{\text{C·m}}$ is directed south. A cloud with a charge of $5C$ is going east at a speed of $30\frac{\text{m}}{\text{s}}$. What is the magnitude and direction of the force on the cloud?

Solution: Since the field and velocity are perpendicular the magnitude of the force is $F = qvB = 0.3$N. The direction is down, toward the ground.