An electron of mass 9.1 x 10^-31 kilograms inside a special vacuum chamber at Caltech undergoes acceleration of 3 x 10^4 m/sec^2 caused by an electrostatic force. Determine the force applied to the electron.

Newton's second law of motion:

The acceleration of a body is directly proportional to, and in the same direction as, the net force acting on the body, and inversely proportional to its mass. Thus,

$$F = ma$$

where F is the net force acting on the object,

m is the mass of the object and a is the acceleration of the object.

Therefore:

$$F = 9.1 * 10^{-31} * 3 * 10^4 \frac{m}{sec^2} = 2.73 * 10^{-26}\ N$$

Answer: $F = 2.73 * 10^{-26}\ N$