

GlowScript 2.8 VPython

```
scene.width = 800
```

```
#consider the charge to be positive and the magnetic field to be in the positive z direction--out of the screen.
```

```
field = box(pos=vector(0,0,0), size=vector(200,200,10), axis=vector(1,0,0), color=color.white, opacity=0.3)
```

```
charge = sphere(pos=vector(-149,90,0), radius=2, color=color.red, make_trail=True)
```

```
qval = 2E-4
```

```
mass = 0.1
```

```
vcharge = vector(5,0,0)
```

```
mom = mass*vcharge
```

```
B = vector(0,0,30.0)
```

```
dt = .1
```

```
while charge.pos.y > -150 and charge.pos.x > -150:
```

```
    rate(120)
```

```
    if charge.pos.x < -100:
```

```
        charge.pos = charge.pos + vcharge*dt
```

```
    else:
```

```
        if charge.pos.x < 100 and charge.pos.y > -100:
```

```
            force = qval*cross(vcharge,B)
```

```
            mom = mom + force*dt
```

```
            charge.pos = charge.pos + mom/mass*dt
```

```
            vcharge = mom/mass
```

```
        else:
```

```
            charge.pos = charge.pos + vcharge*dt
```