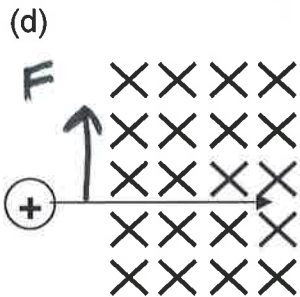## Magnetic Force on a Moving Charge - Practice Problems:
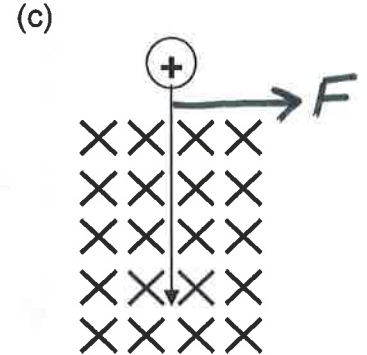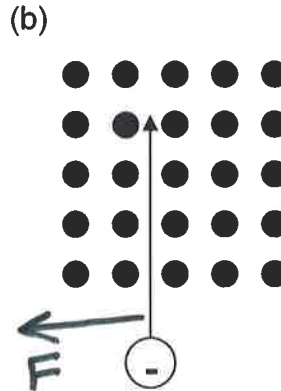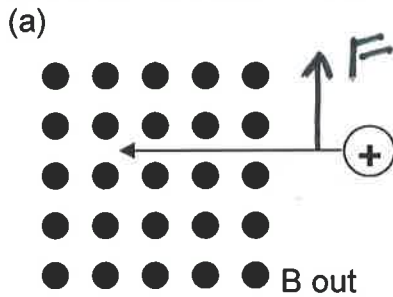1. Determine the direction of the force on a moving charge.

(a)

B out

(b)

(c)

(d)

(e)

B is up

Positive charge moving in
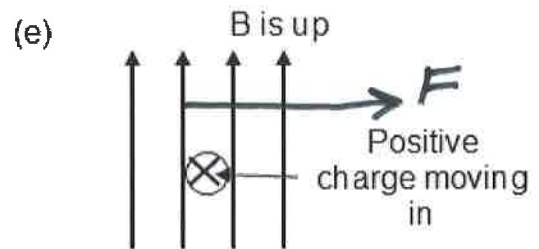
Magnetic Force on a Moving Charge:

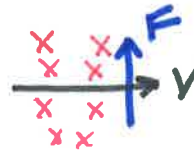$$F = Bqv$$

$B =$ Magnetic field strength in Teslas (T)

$q =$ Charge of the object in Coulombs (C)

$v =$ Velocity of the object (m/s)

1. A positive charge of 0.65 C moves to the right at 60 m/s and enters a magnetic field of 0.25 T directed downward (into the page). What is the magnitude and direction of the force on the charge?

$q = 0.65 C \rightarrow$
$V = 60 m/s$
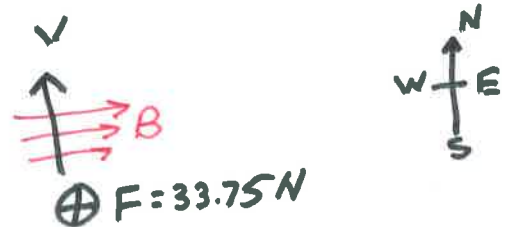$B = 0.25 \oplus$

Draw a diagram of the force, field, and velocity

$F = BqV = 0.25(60)(.65) = 9.75 N \uparrow$

2. A positive charge of 0.9 C moves to the North at 250 m/s and enters a magnetic field of 0.15 T to the East. What is the magnitude and direction of the force on the charge?

$q = 0.9C \uparrow North$
$V = 250 m/s$
$B = 0.15T \rightarrow East$

$F = Bq V = (0.15)(.9)(250)$
$F = 33.75 N$

Draw a diagram of the force, field, and velocity

$\oplus F = 33.75 N$