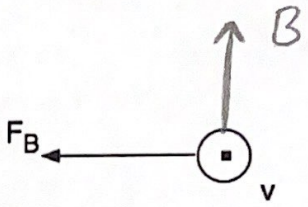
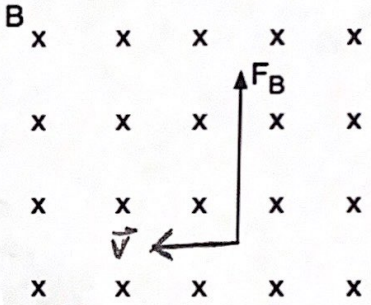
Quiz 21.1A

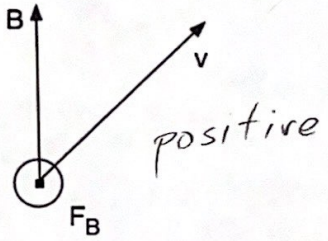
a) A positively charged particle moving out of the page as shown experiences a magnetic force directed to the left. Indicate the direction of the magnetic field in the diagram.



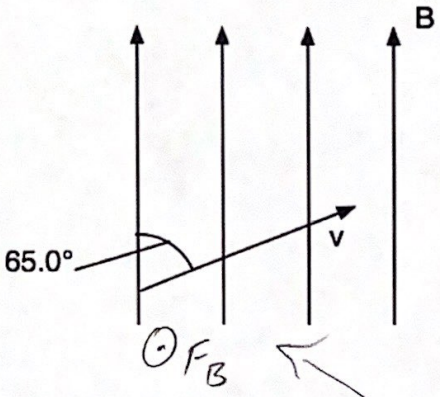
b) A negatively charged particle is immersed in a magnetic field pointing into the page as shown, and it experiences a magnetic force directed toward the top of the page. Indicate the direction of the particle's velocity in the diagram.



c) A particle moving through a uniform magnetic field as shown below experiences a magnetic force directed out of the page. Indicate in the diagram whether this particle has a positive or negative charge.



d) A particle with a speed of 4.40×10^6 m/s and a charge of +235 μC enters a region of uniform magnetic field with a magnitude of 75.0 μT directed toward the top of the page as shown. What is the magnitude and direction of the magnetic force exerted on this charged particle?



$|F_B| = qvB\sin\theta$

$= (235\times10^{-6})(4.40\times10^{6})(75\times10^{-6})\sin 65^\circ = \boxed{.0703\,N}$

⊙