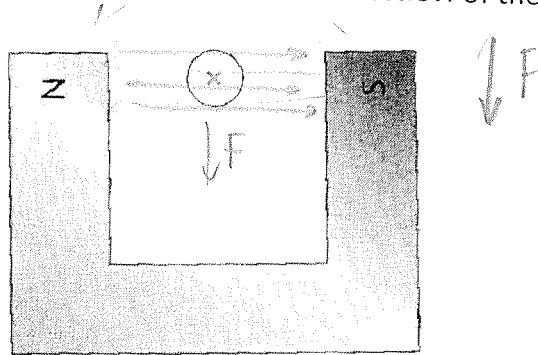
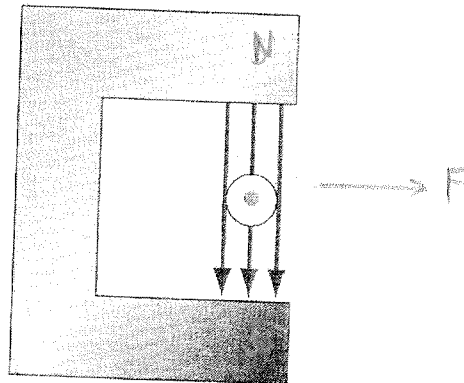


RHR #3 - Practice

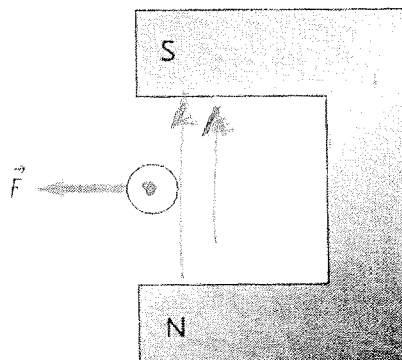
1. Show the direction of the magnetic field and the direction of the force on the wire.



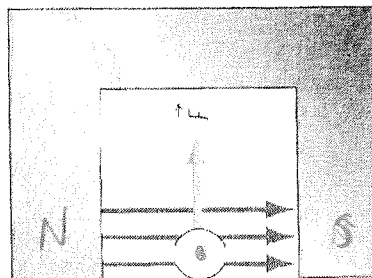
2. Label the North and South poles of the magnet and indicate the direction of the force on the wire.



3. Show the direction of the magnetic field and the direction of the current flow in the wire.



4. Label the North and South poles of the magnet and indicate the direction of the current flow in the wire.



RIGHT HAND RULE #3 Homework ANSWERS

1. $L = 25\text{cm}$
 $= 0.25\text{m}$
 $\theta = 90^\circ$
 $B = 0.20\text{T}$
 $I = 15\text{A}$
 $F = ?$

$$F = BIL \sin\theta$$

$$= (0.20\text{T})(15\text{A})(0.25\text{m}) \sin 90^\circ$$

$$= 0.75\text{N}$$

2. $L = ?$
 $\theta = 90^\circ$
 $B = 0.033\text{T}$
 $I = 20\text{A}$
 $F = 0.10\text{N}$

$$F = BIL \sin\theta \Rightarrow L = \frac{F}{BI \sin\theta}$$

$$L = \frac{(0.10\text{N})}{(0.033\text{T})(20\text{A}) \sin 90^\circ}$$

$$= 0.15\text{m}$$

3. $L = 1.0\text{m}$
 $\theta = 90^\circ$
 $F = 6.0 \times 10^{-5}\text{N}$
 $I = 1.5\text{A}$
 $B = ?$

$$F = BIL \sin\theta$$

$$B = \frac{F}{IL \sin\theta}$$

$$= \frac{(6.0 \times 10^{-5}\text{N})}{(1.5\text{A})(1.0\text{m})(\sin 90^\circ)}$$

$$= 4.0 \times 10^{-5}\text{T}$$

4. $I = 200\text{A}$
 $B = 5.0 \times 10^{-5}\text{T}$
 $\theta = 45^\circ$
 $F = ?$
 $L = 50\text{m}$

$$F = BIL \sin\theta$$

$$= (5.0 \times 10^{-5}\text{T})(200\text{A})(50\text{m}) \sin 45^\circ$$

$$= 3.5 \times 10^{-1}\text{N}$$