Magnetic Fields and Electromagnetism Worksheet

(1) - place a magnet that you know the poles of and place it near the ball, the North pole of the hidden magnet will be attracted to the South pole of the known magnet

or

- move a compass around the ball, the compass will point to the south pole of the hidden magnet.

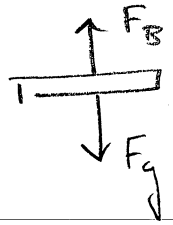
(2) Use the piece of metal is away from the magnet to see if it is attracted to other pieces of metal. If it attracts other pieces of metal it is a permanent magnet, if not then it is temporary.

(3) $F = BIL \sin\theta \qquad \theta = 90°$

$F = (0.4\,T)(8.0\,A)(0.5\,m) = \underline{1.6\,N}$

(4) $F = BIL \sin\theta \qquad \theta = 90°$

$B = \frac{F}{IL} = \frac{0.6\,N}{(6.0\,A)(.75\,m)} = \underline{0.13\,T}$

(5) 

$F_B = F_g$

$BIL = F_g$

$B = \frac{F_g}{IL} = \frac{0.35N}{(6.0A)(.40m)} = \underline{0.15T}$

$\theta = 90°$

(6) $F = BIL\sin\theta \qquad \theta = 90°$

$B = \frac{F}{IL} = \frac{0.6N}{(10.0A)(1.5m)} = \underline{0.04T}$

(7) $F = BIL\sin\theta \qquad \theta = 90°$

$B = \frac{F}{IL} = \frac{0.40N}{(8.0A)(0.5m)} = \underline{0.1T}$

(8) $F = BIL\sin\theta \qquad \theta = 90°$

$= (.6T)(5A)(.8m)$

$= \underline{2.4N \text{ Down}}$

(9) $F = BIL\sin\theta \qquad \theta = 0$ (parallel)

$\underline{F = 0}$

(10) $F = BIL\sin\theta \qquad \theta = 90°$

$I = \frac{F}{BL} = \frac{1.8N}{(0.4T)(625m)} = \underline{0.0072T}$

(11) $F = BIL \sin\theta \quad \theta = 90^\circ$

$$L = \frac{F}{BI} = \frac{3.6\,N}{(.8\,T)(7.5\,A)} = \underline{0.6\,m}$$

(12) $F = BIL \sin\theta \quad \theta = 90^\circ$

$$\frac{F}{L} = BI = (5.0\times10^{-5}\,T)(225\,A) = \underline{0.011\,N \text{ Down}}$$