Quiz 3

2)[2] For the magnet shown below, draw the magnetic field lines.

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2)[6] Jessica Watson, sailing *Ella's Pink Lady* off the coast of Australia where B = 60 nT, 65° upward from north, sees an α-particle with q = +2e shoot straight down at v_α = 30 x 10^6 m/s.   (e = 1.6 x 10^{-19})

   a)[2] Label the (six) directions indicated
   b)[2] Draw vectors for $\vec{v}_\alpha$, $\vec{B}$ and $\vec{F}_B$
   c)[4] Find the magnetic force on the α-particle (mag. & dir.).

$$\vec{F}_B = q\vec{v} \times \vec{B} \implies F_B = qvB\sin\theta$$