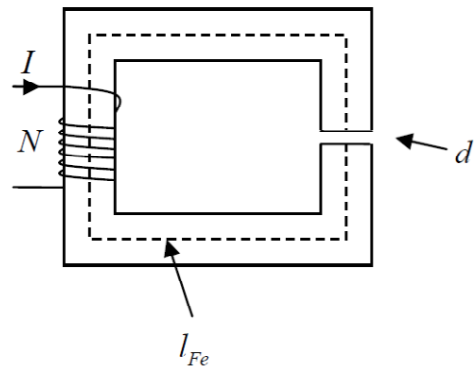
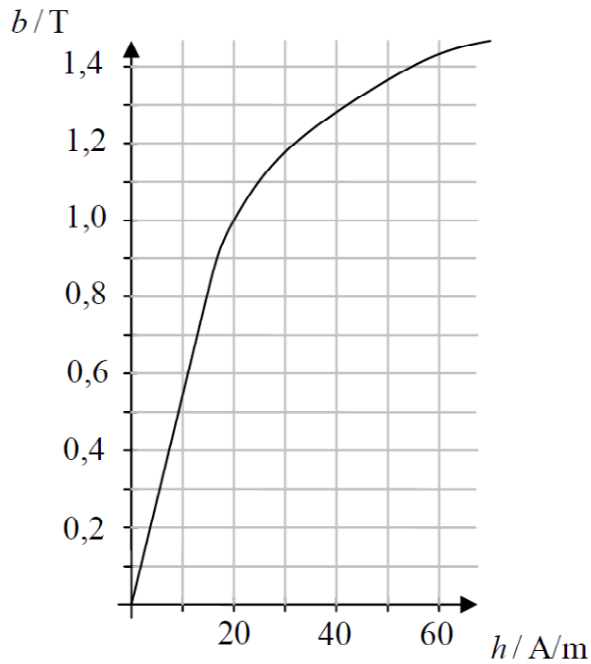


Exercise 2

The magnetic circuit arrangement shows an iron core with an air gap. The winding consists of $N = 350$ turns. A DC current I flows through the winding. Cross sectional area of the core $A = 16 \text{ cm}^2$, mean path length of the iron core $l = 40 \text{ cm}$, air gap length $d = 0.5 \text{ mm}$. b - h curve for the core material is also given in the figure.



The flux density in the iron core $B = 1.0 \text{ T}$.

Calculate,

- The flux and the flux linkages $\Psi = N\phi$.
- The current I required to produce the flux with no air gap.
- The required current I for the case with air gap included.