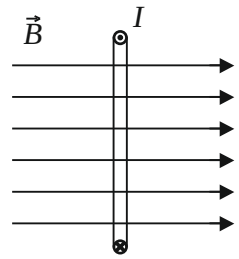
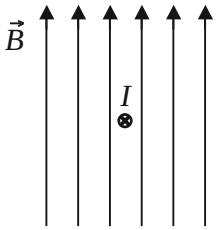
22.11.2006., Zagreb

5. domaća zadaća iz Osnova elektrotehnike i elektronike

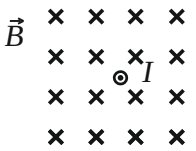
1. Nacrtati smjer sile i izračunati njen iznos za šest pozicija kao na slici, ako je zadano: I = 30 mA, B = 0,4 T, l = 10 cm.



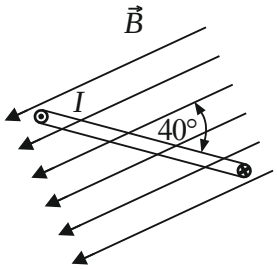
a)



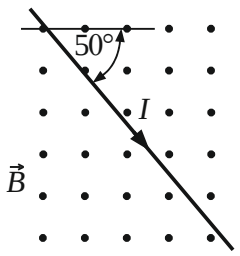
b)



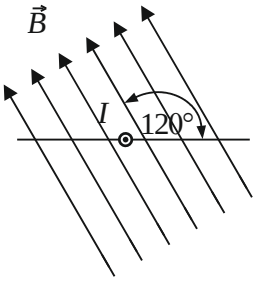
c)



d)



e)



f)

Rješenje:

a) $F = IlB\sin\angle\left(\vec{l},\vec{B}\right) = 0{,}03\cdot 0{,}1\cdot 0{,}4\cdot\sin 90° = 1{,}2\ \text{mN}$ Sila djeluje okomito u papir.

b) $F = IlB\sin\angle\left(\vec{l},\vec{B}\right) = 0{,}0012\cdot\sin 90° = 1{,}2\ \text{mN}$ Sila djeluje udesno.

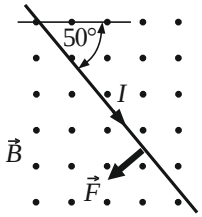
c) $\angle\left(\vec{l},\vec{B}\right) = 0$, $\sin 0° = 0$, $F = 0$

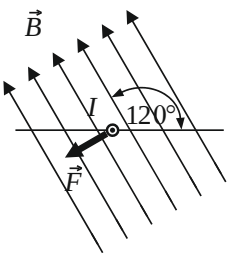
d) $F = IlB\sin\angle\left(\vec{l},\vec{B}\right) = 0{,}0012\cdot\sin 40° = 771{,}3\ \mu\text{N}$ Sila djeluje okomito iz papira.

e) $F = IlB\sin\angle\left(\vec{l},\vec{B}\right) = 0{,}0012\cdot\sin 90° = 1{,}2\ \text{mN}$

f) $F = IlB\sin\angle\left(\vec{l},\vec{B}\right) = 0{,}0012\cdot\sin 90° = 1{,}2\ \text{mN}$

Smjer sile u poziciji e)





Smjer sile u poziciji f)