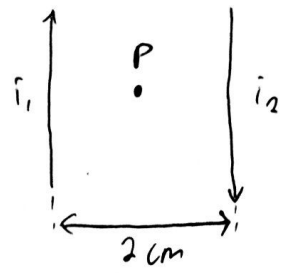
M. Hasyim Abdillah P.

1101191095 / TT - 43 - 11

1.) Dik :



$\ell = 25\ cm = 25 \times 10^{-2}\ m$

$r = 2\ cm = 2 \times 10^{-2}\ m$

$i_1 = 30\ mA = 0,03\ A$

$i_2 = 0,01\ A$

Dit : a. $B = \ldots$?

b. $F.r = \ldots$?

Jawab :

a.) $B = B_1 + B_2$

$= \frac{\mu_0 I_1}{2\pi \frac{r}{2}} + \frac{\mu_0 I_2}{2\pi \frac{r}{2}}$

$= \frac{\mu_0}{\pi r}(i_1 + i_2)$

$= \frac{2\cancel{\pi} \times 10^{-7}}{\cancel{\pi} \cdot 2 \times 10^{-2}}(0,03 + 0,01)$

$= 2 \times 10^{-5}(0,04)$

$= 8 \times 10^{-7}\ T$

Memasuki bidang

b.) $F = \frac{\mu_0 I_1 I_2}{2\pi r} \cdot \ell$

$F.r = \frac{\mu_0 I_1 I_2}{2\pi} \ell$

$F.r = \frac{4\cancel{\pi}^2 \times 10^{-7} \cdot 0,03 \cdot 0,01}{2\cancel{\pi}} 25 \times 10^{-2}$

$F.r = 1,5 \times 10^{-11}\ Nm$

Saling tolak menolak

kawat 1 ke arah kiri

kawat 2 ke arah kanan