

$$F = \frac{\mu_0 I_1 I_2 l}{2\pi a}$$

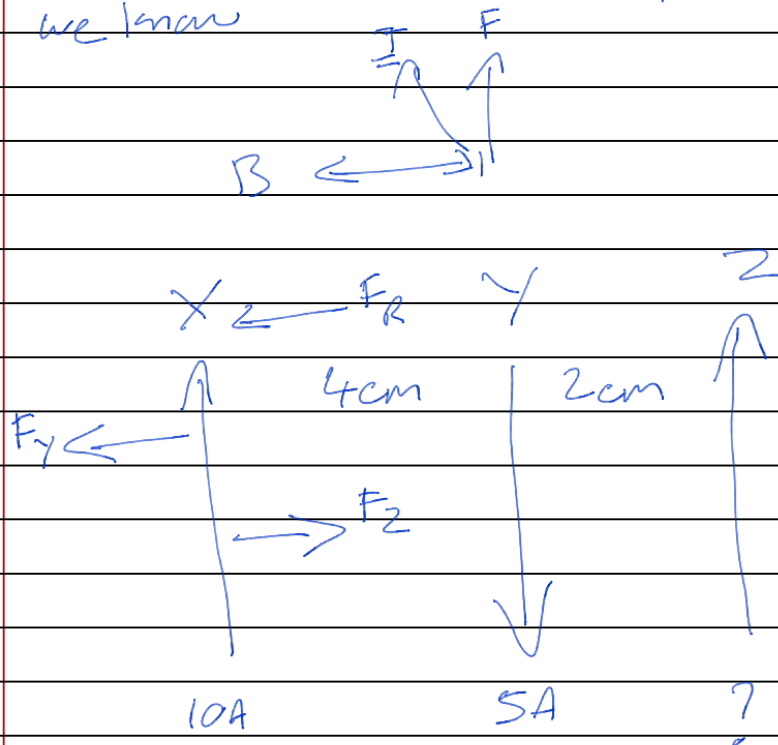
Current 1
 Current 2
 distance between

per m

$$\frac{F}{l} = \frac{\mu_0 I_1 I_2}{2\pi a}$$

$$\mu_0 = 4\pi \times 10^{-7} \text{ NA}^{-1}$$

we know



$$F_y/m = \frac{2 \times 10^{-7} \times 10 \times 5}{4 \times 10^{-2}} = 25 \times 10^{-5} = 0.25 \text{ mNm}^{-1}$$

$$F_x/m = F_y/m - F_2/m \Rightarrow 0.50 = 0.25 - F_2/m$$

So $F_2/m = -0.25 \text{ mNm}^{-1}$ which means 2 Current must be opposite as shown

$$\text{then } 0.25 \times 10^{-3} = \frac{2 \times 10^{-7} \times 10 \times A}{6 \times 10^{-2}} = 3.33 \times 10^{-5} A$$

So A = 7.5A