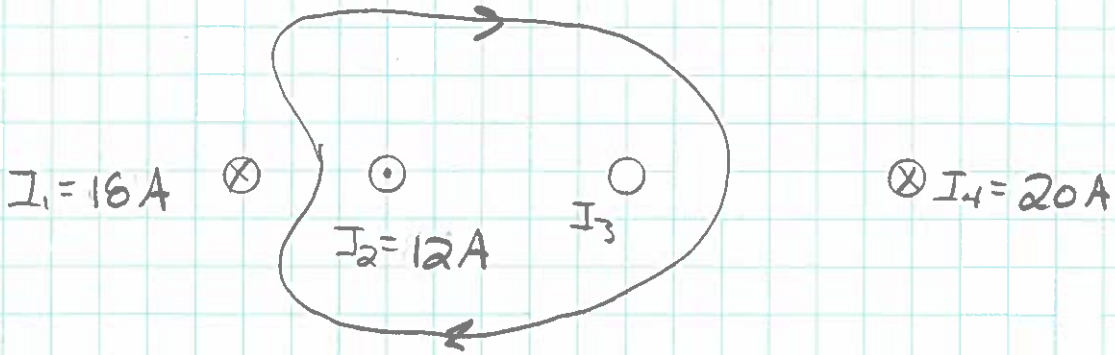

$\oint \vec{B} \cdot d\vec{s} = 1.38 \times 10^{-5}\,Tm = \mu_0 I_{through}$

the line integral in positive per the direction shown; I_2 (out) contributes negatively to the line integral

So, current out is negative

So

$$1.38 \times 10^{-5}\,Tm = \mu_0 (I_2 + I_3)$$

$$= \mu_0 (-12A + I_3)$$

$$I_3 = \frac{1.38 \times 10^{-5}\,Tm}{\mu_0} + 12A$$

$$= \underline{22.98\,A} \text{ in.}$$