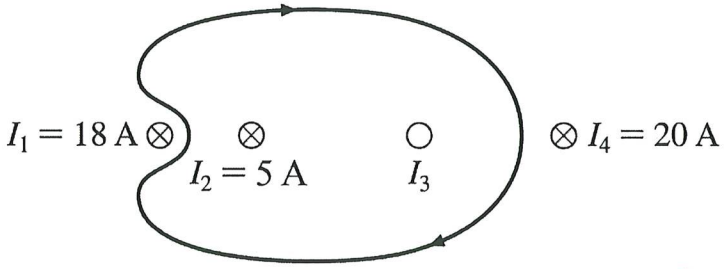
PHYSICS 121 Tutorial #9 – quiz Name:
March 28, 2022 Student Number:

(2pts) **1.** The value of the integral $\oint \vec{B} \cdot d\vec{\ell} = \mu_0 I_{\text{encl}}$ around the closed path in the figure below is 1.01×10^{-5} T m. The four currents in the figure are perpendicular to the page. What are the direction and magnitude of I_3?



(a) 1 A, into the page
(b) 3 A, into the page
(c) 5 A, into the page
(d) 5 A, out of the page
(e) 3 A, out of the page
(f) 1 A, out of the page

$\oint \vec{B} \cdot d\vec{\ell} = \mu_0 I_{encl}$

$= \mu_0 (I_2 + I_3)$

$\therefore I_3 = \dfrac{\oint \vec{B} \cdot d\vec{\ell}}{\mu_0} - I_2$

$= 3$ A

I_3 in same dir'n as I_2

→ into the page.

2 pts