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Birzeit University
Faculty of Engineering and Technology
Department of Electrical and Computer Engineering
Circuit Analysis – ENEE 2304
Quiz #1

26 November 2022 **Dr. Jaser Sa'ed** **Time: 10 min**

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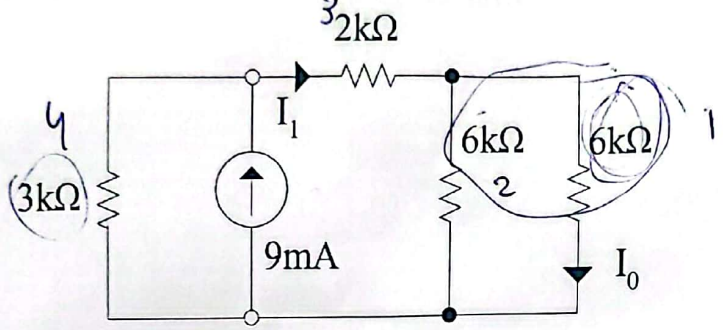
Find the currents I_1 and I_0 in the circuit below using current divider rule.



$I_1 = \frac{R_2}{R_1+R_2}$

current divider

$I_1 R_1 = I_2 R_2$

$I_1 = \left(\frac{R_2}{R_1+R_2}\right)(I_s)$

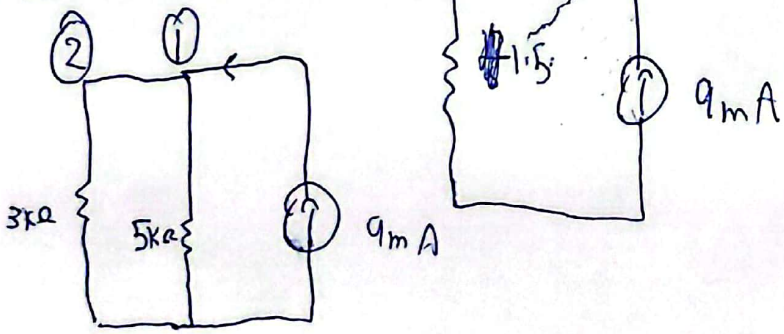
$\frac{6\times6}{6+6} = 3\Omega$? $= 2\Omega$

$\frac{2\times6}{2+6}$

R_1, R_2 parallel $\rightarrow 3k\Omega$

R_1+R_2 & $R_3 \rightarrow 5k\Omega$

series



$I_1 R_1 = I_2 R_2$

I_R

$\left(\frac{15}{8}\right)(9\times10^{-3}) =$

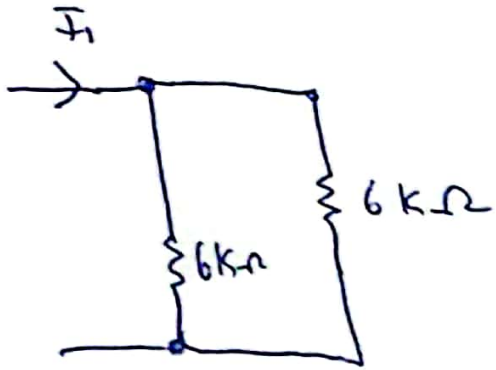
current entering 3 and 5 $= 9mA$

$I_1 = \left(\frac{3\times10^3}{8\times10^3}\right)(9\times10^{-3})$

$= \frac{3}{8}\times9\times10^{-3}$

$I_1 = \frac{27}{8}\times10^{-3}\ A$

I_1 is the current being divided to I_o



$$I_o = \left(\frac{6 \times 10^3}{12 \times 10^3}\right)\left(\frac{27}{8} \times 10^{-3}\right)$$

$$= (0.5)\left(\frac{27}{8}\, mA\right)$$

$$I_o = \frac{27}{16}\, mA$$