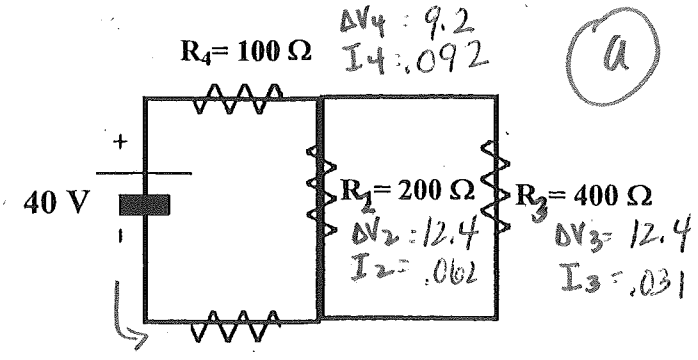
Problem 4 a) Find the voltage drop across each resistor.
b) Find the current through each resistor.



(a) $\Delta V_1 = (.092)(200\Omega) = 18.4\ V$

$\Delta V_4 = (.092)(100) = 9.2\ V$

$40 = \Delta V_1 + \Delta V_2 + \Delta V_4$

$18.4 + \Delta V_2 + 9.2$

$\Delta V_2 = 12.4\ V$

$\Delta V_3 = 12.4\ V$

(1) Find R_{eq}

$\frac{1}{R_{eq}} = \frac{1}{200} + \frac{1}{400}$ $R_{eq} = 133.3\Omega$

$133.3\Omega + 200\Omega + 100\Omega = \boxed{433.3\Omega}$

(2) Total current

$\Delta V = I R$

$40V = I(433.3\Omega)$

$\boxed{I = .092\ A}$

$\boxed{I_1, I_4 = .092\ A}$

(b) Find I_2 & I_3

$\Delta V_2 = I_2 R_2$

$12.4 = I_2(200)$

$\boxed{I_2 = .062\ A}$

$\Delta V_3 = I_3 R_3$

$12.4 = I_3(400)$

$\boxed{I_3 = .031\ A}$

total current

$.092 = .062 + .031$ ✓

✓ ΔV $40 =$