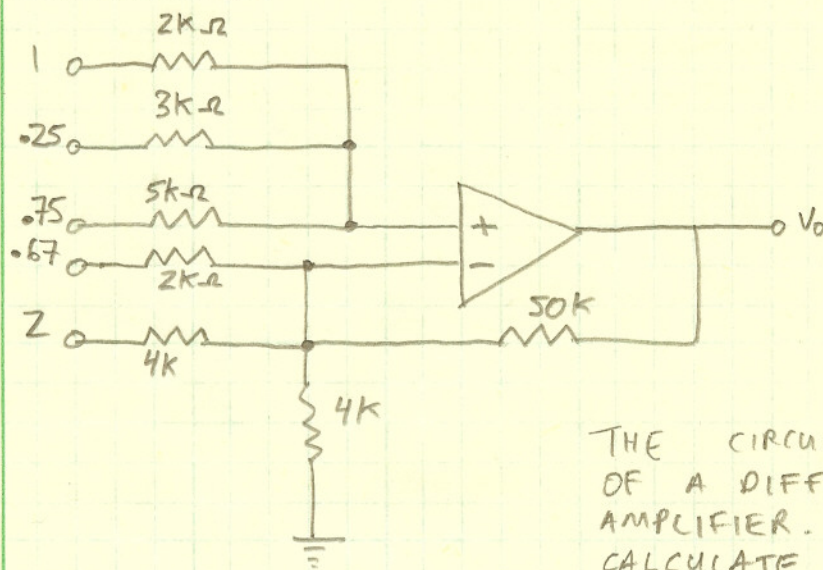


PROBLEM 2



THE CIRCUIT IS A COMBINATION OF A DIFFERENCE AND SUMMING AMPLIFIER. THE OP AMP IS IDEAL. CALCULATE OUTPUT VOLTAGE V_0 .

$$I = \frac{V}{R}$$

$$i_1 = \frac{1}{2000}$$

$$i_2 = \frac{.25}{3000}$$

$$i_3 = \frac{.75}{5000}$$

$$V_- = \left(\frac{3k \parallel 5k}{3k \parallel 5k + 2k} \right) \cdot 1 + \left(\frac{5k \parallel 2k}{5k \parallel 2k + 3k} \right) \cdot .25 + \left(\frac{2k \parallel 3k}{2k \parallel 3k + 5k} \right) \cdot .75$$

$$V_- = \left[\frac{(3k)(5k)}{(3k)(5k) + 2k(3k + 5k)} \right] \cdot 1 + \left[\frac{(5k)(2k)}{(5k)(2k) + 3k(5k + 2k)} \right] \cdot .25 + \left[\frac{(2k)(3k)}{(2k)(3k) + 5k(2k + 3k)} \right] \cdot .75$$