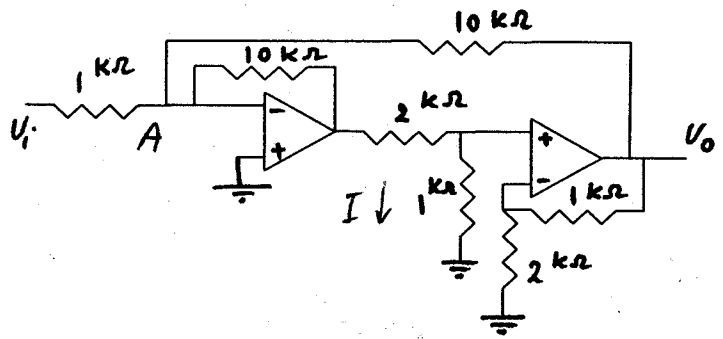


1-20 points) In the op-amp circuit shown, find the voltage gain V_o/V_i



Solution:

$$V_-(2) = \frac{2}{2+1} V_o = \frac{2}{3} V_o$$

$$V_+(2) = V_-(2) = \frac{2}{3} V_o$$

$$\frac{V_+(2)}{1k} = I = \frac{2}{3} V_o$$

$$V_{o1} = (2+1) I = (2+1) \frac{2}{3} V_o = 2 V_o$$

$$V_-(1) = V_+(1) = 0$$

writing a KCL at Point A

$$\frac{V_i - 0}{1} = \frac{0 - V_o}{10} + \frac{0 - 2V_o}{10}$$

Simplifying the above equation results in

$$\boxed{\frac{V_o}{V_i} = -\frac{10}{3}}$$