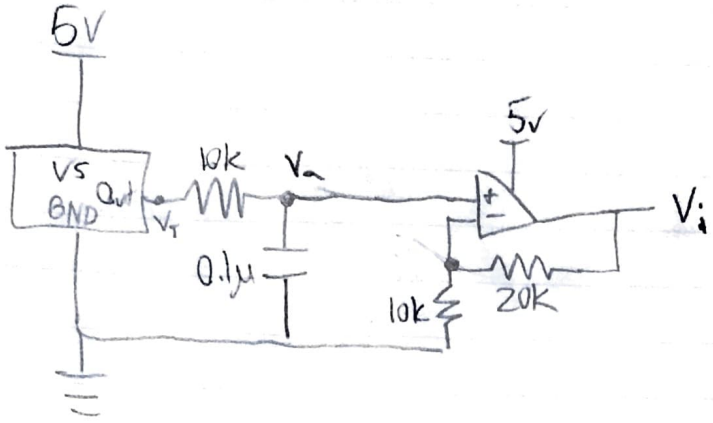
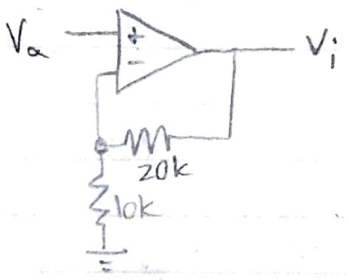


$$\frac{V_T - V_a}{10\times10^3} = \frac{V_a - 0}{1/0.1\times10^{-6}s}$$

$$V_T - V_a = (0.1\times10^{-3}s)V_a$$

$$V_a = \frac{V_T}{1+0.1\times10^{-3}s}$$



Non-inverting op-amp:

$$A = \frac{V_i}{V_a} = 1 + \frac{20\times10^3}{10\times10^3}$$

$$V_i = 3V_a$$

$$\frac{V_i}{V_T} = \frac{3}{1+0.1\times10^{-3}s} = G(s)$$