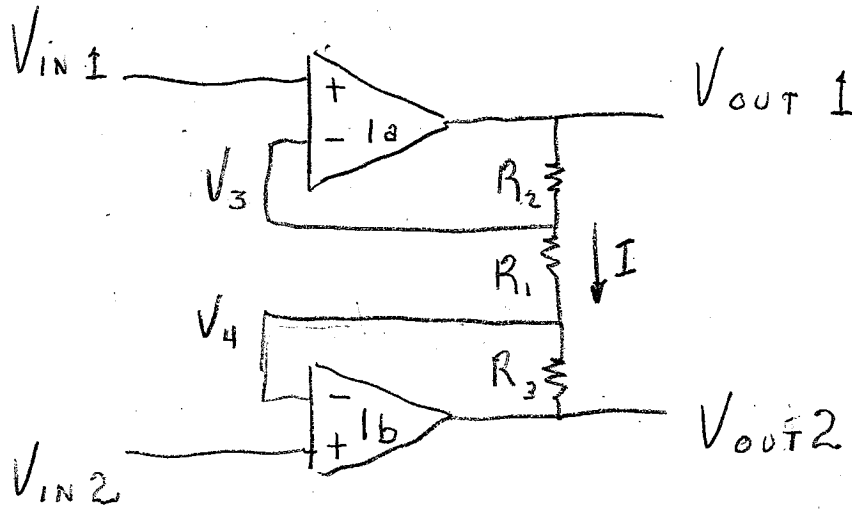


first stage



If op 1a is in linear operation

$$V_3 = V_{IN1}$$

If op 1b is in linear operation

$$V_4 = V_{IN2}$$

$$\text{Output voltage} = V_{OUT1} - V_{OUT2} = I \times (R_1 + R_2 + R_3)$$

$$\text{Input voltage} = V_{IN1} - V_{IN2} = V_3 - V_4 = I R_1$$

$$A = \frac{V_{out}}{V_{in}} = \frac{I \times (R_1 + R_2 + R_3)}{I \times R_1} = \frac{R_1 + R_2 + R_3}{R_1}$$