



$$I \text{ through Resistors} = \frac{V_o}{R_1 + R_2}$$

$$V_x = \left(\frac{V_o}{R_1 + R_2} \right) R_1$$

$$I_o = \left(\frac{V_o}{R_1 + R_2} \right) + g_m \left(\frac{V_o R_1}{R_1 + R_2} \right)$$

$$V_o = I (R_1 + R_2)$$

$$\frac{V_o}{I_o} = R'_{eq} = \frac{I (R_1 + R_2)}{\left(\frac{V_o}{R_1 + R_2} \right) + g_m \left(\frac{V_o R_1}{R_1 + R_2} \right)}$$