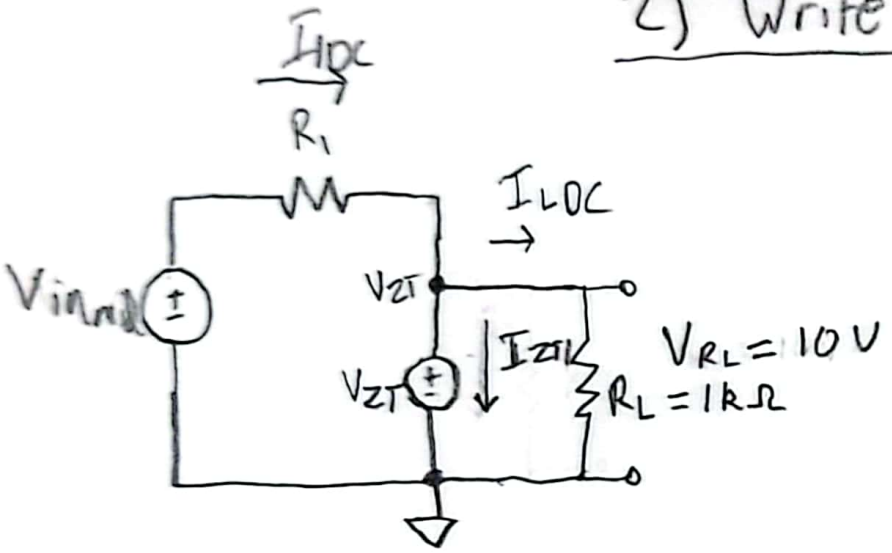
2) Write equation for R_1 in terms of V_{inmid}



KCL at Node V_{ZT}

$$\sum I_{in} = \sum I_{out}$$

$$I_{1DC} = I_{ZT1} + I_{LDC}$$

$$I_{1DC} = \frac{V_{in\_mid} - V_{ZT}}{R_1}$$

$$I_{ZT1} = 5mA$$

$$I_{LDC} = \frac{V_{ZT} - 0V}{R_L} = \frac{10V}{1k\Omega}$$

$$\frac{V_{inmid} - 10V}{R_1} = 5mA + 1mA \qquad = 1mA$$

$$R_1 = \frac{V_{inmid} - 10V}{6mA} = \frac{V_{inmid} - 10V}{6E\text{-}3\,A}$$