Special Problem 3.4-10

The zener diode in this circuit has a breakdown voltage of V_{ZK}.

The dynamic resistance of the zener diode is zero.

The zener diode in this circuit is in breakdown, with a current of $i_Z =$ 3.0 mA.

The current through the load resistor R_L is $i_L = 2.0$ mA.

1. Determine the zener breakdown voltage of the zener diode.

2. What is the value of load resistor R_L ?

3. Using the values of V_{ZK} and R_L you just determined, determine the value of output voltage v_O if the source voltage is increased to $v_S = 26.0$ V.