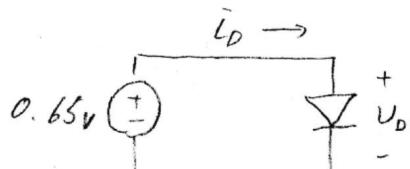


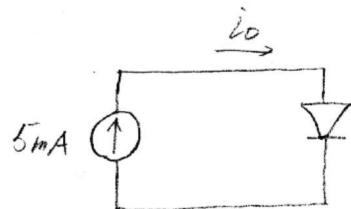
Chapter 3 Assignment

3.2 Draw the volt-ampere characteristic of a typical small-signal diode to scale, and label the various regions.

3.11 Sketch the load line to scale on the $i_D - V_D$ axes for the circuit illustrated in figure (a). Repeat for figure (b).



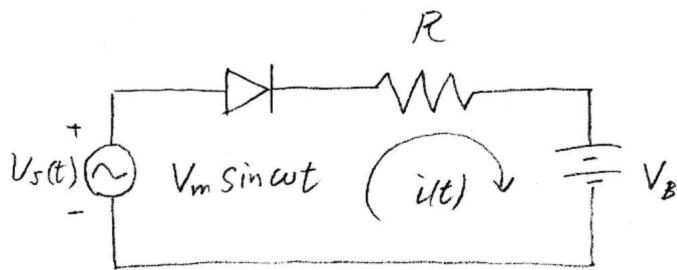
(a)



(b)

3.18 Two ideal diodes are connected in series, pointing in opposite directions. What is the equivalent circuit? Repeat if the diode are in parallel.

3.24 Consider the battery-charging circuit of the following figure with $V_m = 20V$, $R = 10\Omega$, and $V_B = 14V$. Find the peak current, assuming an ideal diode. Also, find the percentage of each cycle for which the diode is in the on state. Sketch $v_s(t)$ and $i(t)$ to scale against time.



3.77 Consider the circuit displayed in the following figure. The diodes are identical and have $n=1$. The temperature of each diode is 300K. Before the switch is closed, the voltage v is 600mV. Find v after the switch is closed. Repeat for $n=2$.

