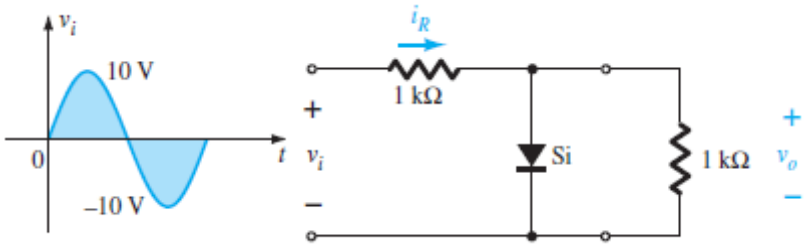
Remember to check your calculations using LTSpice

1. For the network below, sketch v_o and i_R

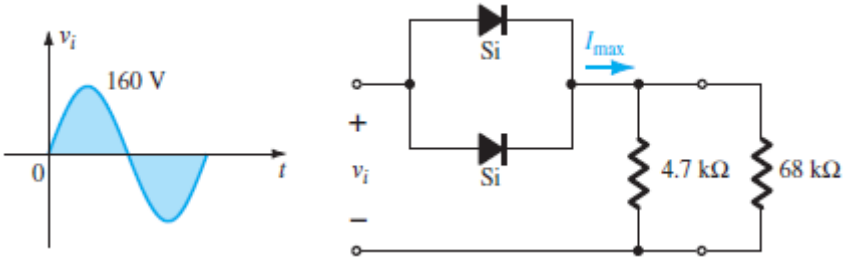


2. **a.** Given P_{max} = 14 mW for each diode at Fig. 2.172 , determine the maximum current rating of each diode (using the approximate equivalent model).

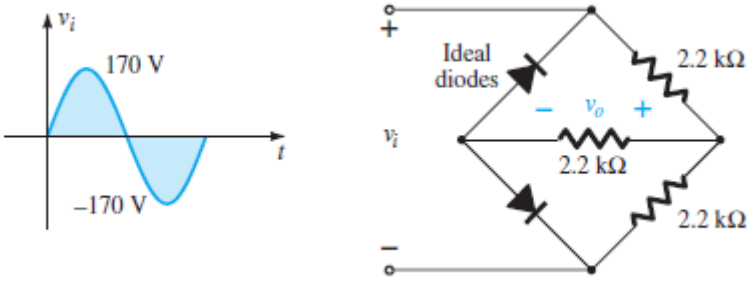
b. Determine I_{max} for the parallel diodes.

c. Determine the current through each diode at V_{imax} using the results of part (b).

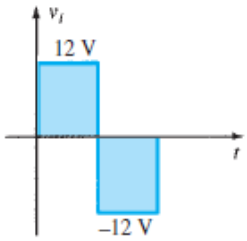
d. If only one diode were present, which would be the expected result?

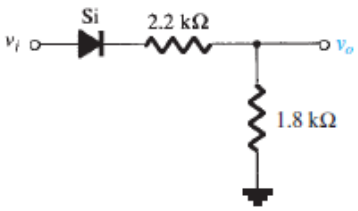


3. Sketch v_o for the network below and determine the dc voltage available.

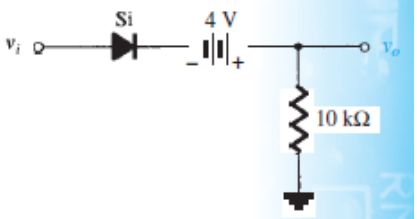


4. Determine v_o for each network shown below, for the input shown.



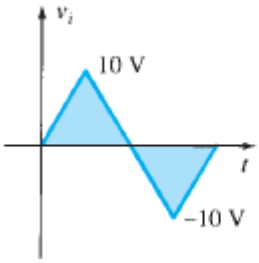


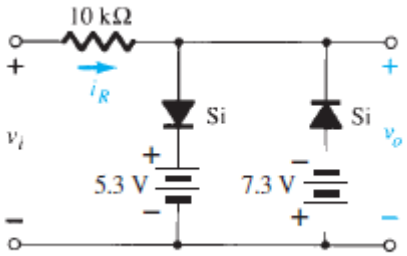
(a)



(b)

5. Sketch i_R and v_o for the network shown below for the input shown.



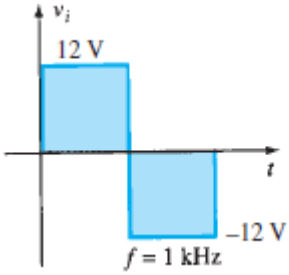


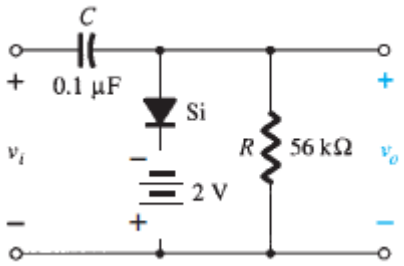
6. For the network shown below :

a. Calculate 5t .

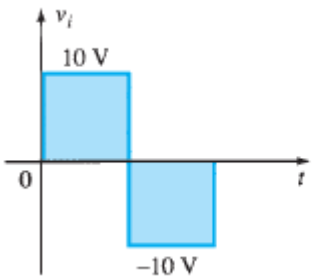
b. Compare 5t to half the period of the applied signal.

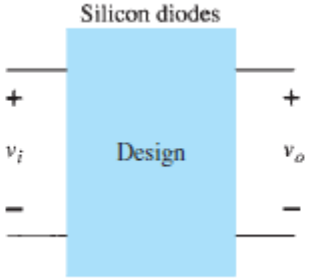
c. Sketch v_o .

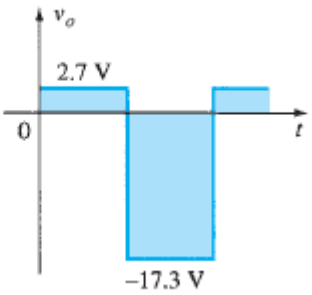




7. Design a clamper to perform the function indicated







8. **a.** Design the network shown below to maintain V_L at 12 V for a load variation (I_L) from 0 mA to 200 mA. That is, determine R_S and V_Z.

b. Determine $P_{Z\,max}$ for the Zener diode of part (a).