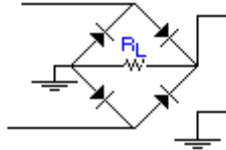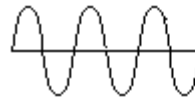**Homework #3**
Diode Rectifiers
Due: Friday, 25 February

Below are two diode circuit configurations and two figures showing the input and ideal
output voltages for these circuits. Indicate which input/output voltage pairs go with
which circuit. Also, label which circuit is a half-wave and which is a full-wave rectifier.

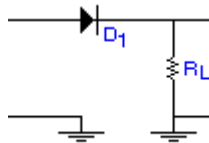Circuit One   Input Voltage   Output Voltage
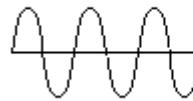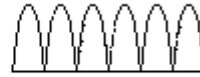

Circuit Two   Input Voltage   Output Voltage

When we use PSpice to simulate the response of a real diode (1N4148, for example) we
obtain a slightly different output response. Shown below is a Probe plot for these two
circuits configured with 1N4148 diodes and 1kΩ resistors. Again, label which goes with
which circuit. Then note and explain any differences between the ideal and more realistic
response obtained from PSpice. Just for reference purposes, the input voltage in the two
cases below is 10 volts peak-to-peak. For this simulation, this source was applied
simultaneously to both types of rectifiers so both outputs are shown with the one input.
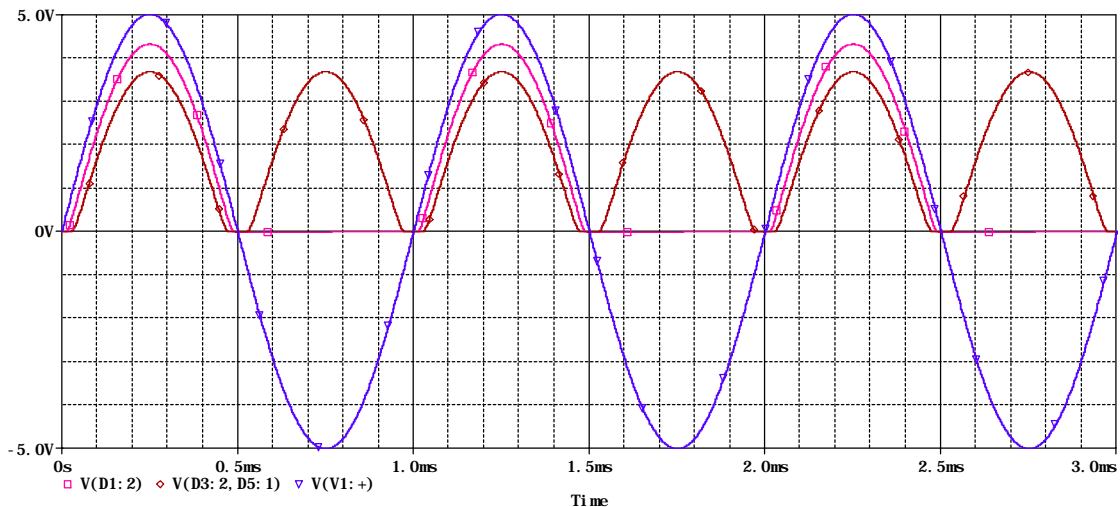
If you wanted to add smoothing to these rectifiers, what would you do? Show your
answer by modifying the circuit diagrams above. How will the output change when you
add smoothing?