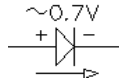


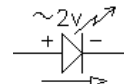
Name: _____

ECE 2210 Homework DO2

Assume the diodes are silicon with a 0.7V forward voltage drop:

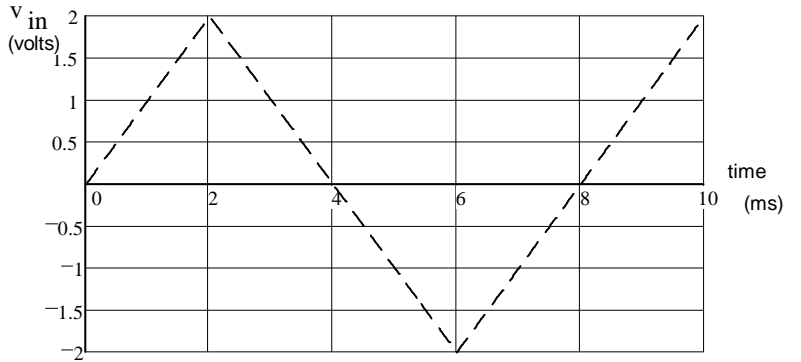
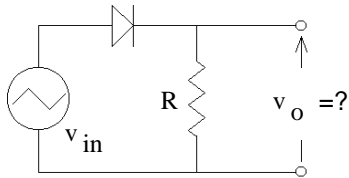


Assume the LEDs have a 2V forward voltage drop:

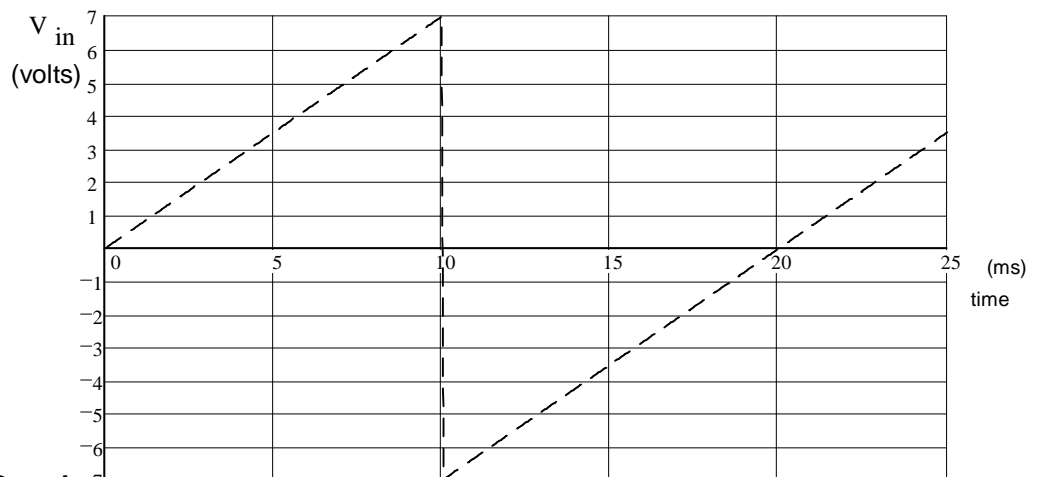
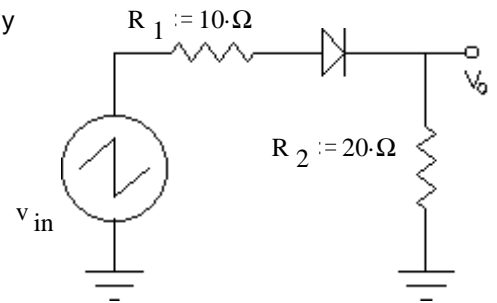


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1. The input voltage to the circuit below is shown at right (dotted line). Show the output voltage across the resistor. Make it accurate and label the important voltages **and** times. You can draw your answer right on my drawing, that's why the input is shown as a dotted line.

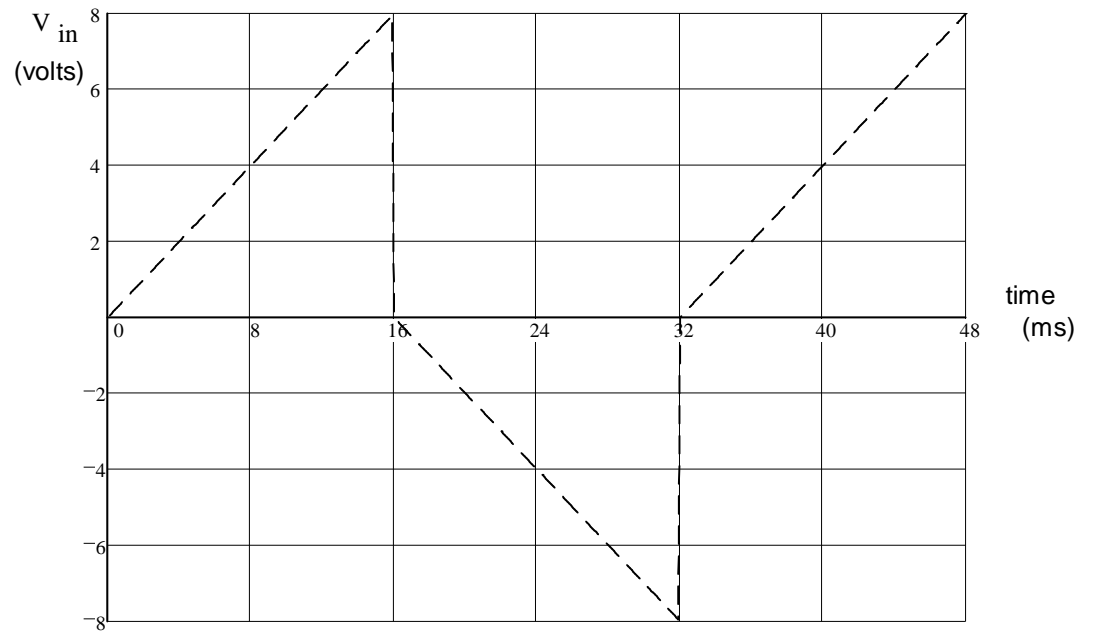
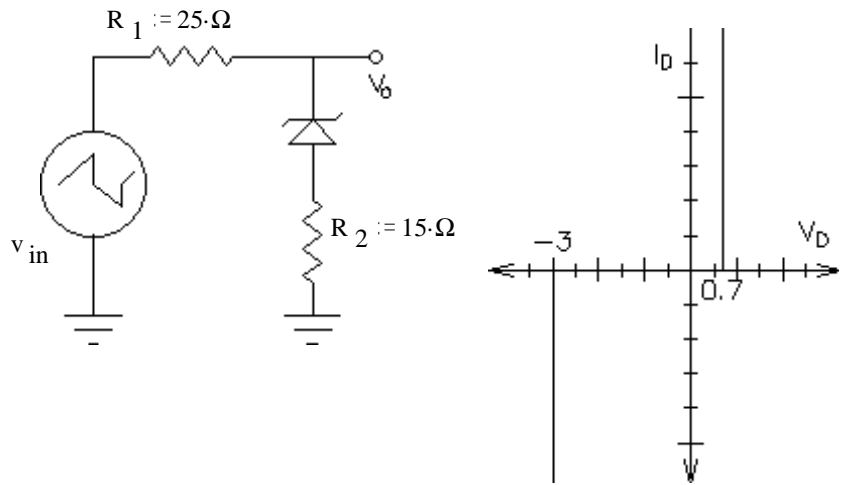


2. The voltage waveform shown (dotted line) is applied to the circuit. Accurately draw the output voltage you expect to see across the 20 Ω resistor. Label the important voltages **and** times.



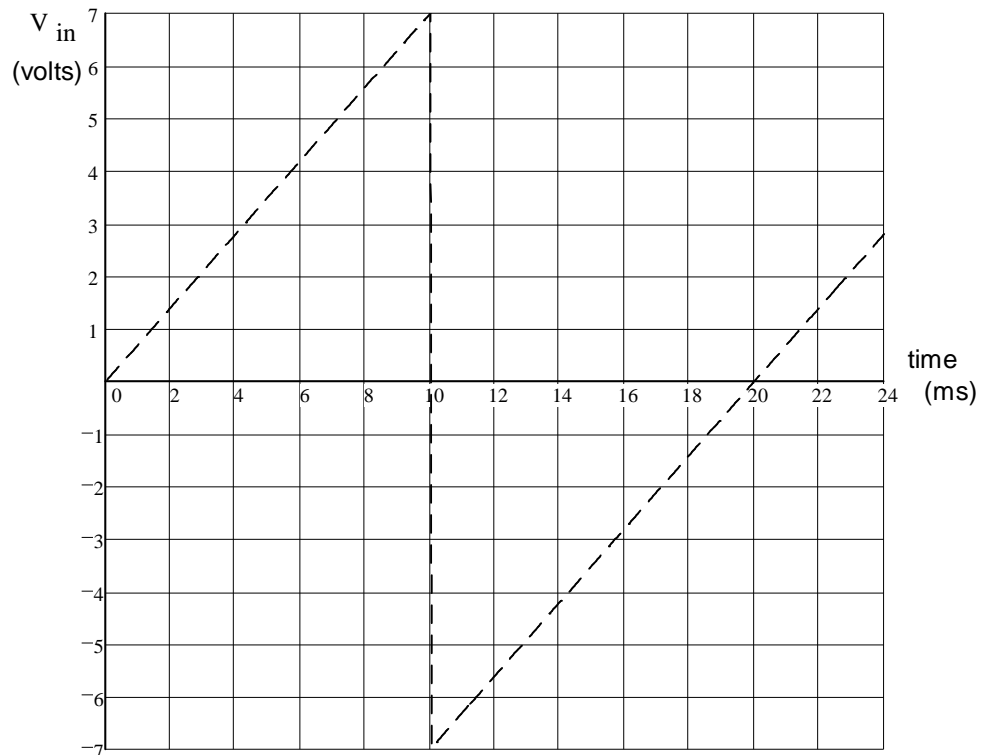
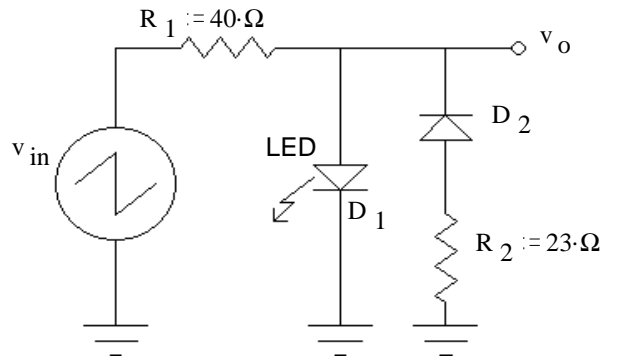
ECE 2210 homework DO2 p2

3. The voltage waveform shown below is applied to the circuit shown. Accurately draw the output voltage (v_o) you expect to see. The characteristic curve for the 3-V silicon zener diode is also shown. Label important times and voltage levels.



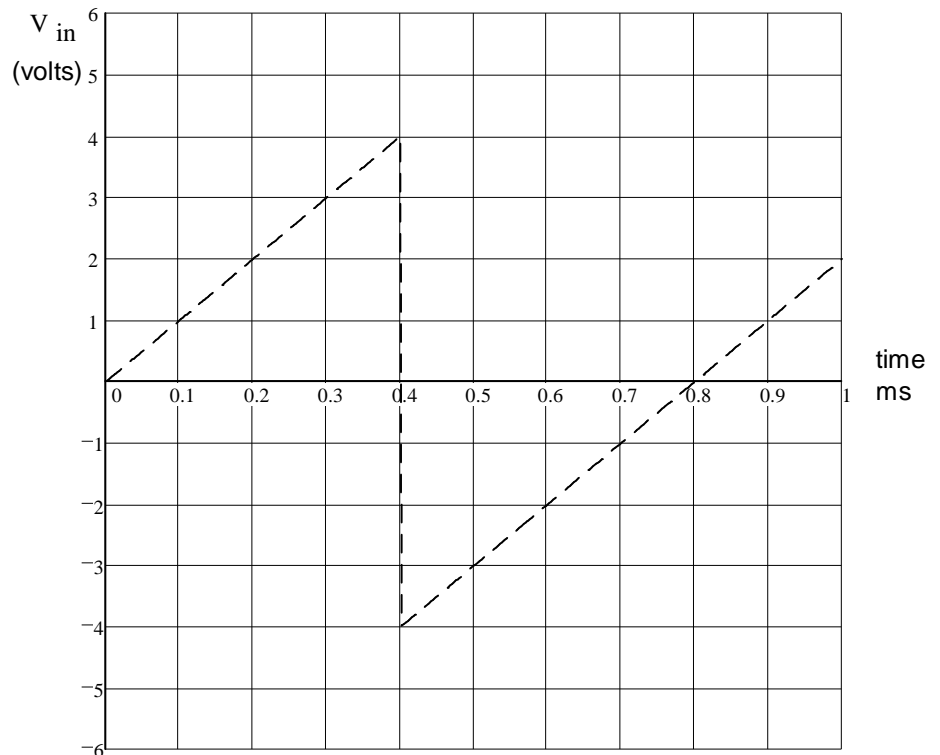
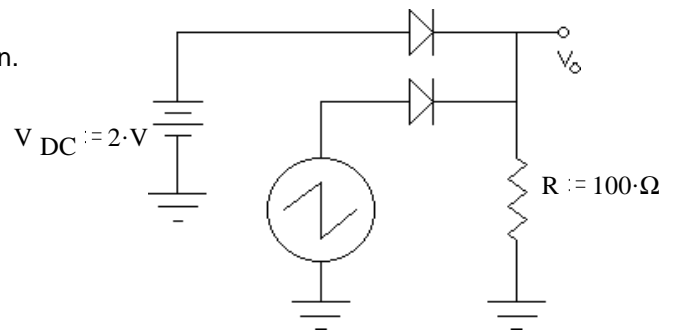
ECE 2210 homework DO2 p3

4. A voltage waveform (dotted line) is applied to the circuits shown.
Accurately draw the output waveform (v_o) you expect to see.
 Label important times and voltage levels.



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5. A voltage waveform (dotted line) is applied to the circuits shown.
Accurately draw the output waveform (v_o) you expect to see.
 Label important times and voltage levels.



Answers

- 1 Straight lines between the following points: (0ms,0V), (0.7ms,0V), (2ms,1.3V), (3.3ms,0V), (8.7ms,0V), then ramps up as between 0.7ms & 2ms.
- 2 Straight lines between the following points: (0ms,0V), (1ms,0V), (10ms,4.2V), (10ms,0V), (21ms,0V), then ramps up as between 0.7ms & 10ms.
- 3 Straight lines between the following points: (0ms,0V), (6ms,3V), (16ms,4.875V), (16ms,0V), (17.4ms,-0.7V), (32ms,-3.438V), (32ms,0V), (38ms,3V), then ramps up as between 6ms & 16ms.
- 4 Straight lines between the following points: (0ms, 0), (2.86ms, 2V), (10ms, 2V), (10ms, -3V), (19ms, -0.7V), (22.86ms, 2V), flat at 2
- 5 Straight lines between the following points: (0ms,1.3V), (0.2ms,1.3V), (0.4ms,3.3V), (0.4ms,1.3V), (1ms,1.3V) .

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