## 6.4.2: Non-ideal Inductor Effects (45 points total)

1. Attach to this worksheet your sketches of the inductor voltage and current resulting from the triangular and square waves of Figure 3. (5 pts)
2. Attach to this worksheet an image of the oscilloscope window, showing the resistor voltage, the inductor voltage, and the inductor current waveforms and the measured amplitudes of these waveforms resulting from the 1kHz triangular input. (8 pts)
3. **DEMO**: Have a teaching assistant initial this sheet, indicating that they have observed your circuit’s operation for sinusoidal inputs. (5 pts)

**TA Initials: \_\_\_\_\_\_\_**

1. In the space below, provide the measured resistance of the inductor. (2 pts)
2. In the space below, sketch the expected voltages *vLI(t)* and *vRL(t)* as indicated in Figure 2 (based on your resistance measurement of 4 above). Also sketch the sum of these contributions. Briefly discuss the relationships between this latter sketch and your measured inductor voltage waveform. (5 pts)
3. Attach to this worksheet an image of the oscilloscope window, showing the resistor voltage, the inductor voltage, and the inductor current waveforms and the measured amplitudes of these waveforms resulting from the 100 Hz square wave input. (8 pts)
4. In the space below, sketch the expected inductor voltage based on the non-ideal inductor model and your measured inductor current. (7 pts)
5. In the space below, briefly compare the ideal, non-ideal, and measured inductor voltages. (5 pts)