Programming the UNO and Making Measurements with Oscilloscope

Names: _____
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1. Find the example "blink" included in Arduino Sketch and save to your own folder. Compile and upload the program to the UNO which will blink the on-board LED (hidden under breadboard) tied to digital pin 13.

2. Uses serial print and monitor to display a message once, and then another over and over.

    a. What are the key functions/commands you used? List and describe them.

3. Add your own external LED (with resistor to limit current) on the breadboard, turn it on and off every second using a digital port of your choice.

    a. Use the oscilloscope to measure accuracy of time specified by delay(1000) on the digital port. Sketch the square wave you see on the oscilloscope noting "on" and "off" times.

4. Add your own external LED (with resistor to limit current) on the breadboard, and vary its brightness using a digital port with PWM.

    a. What are the key functions/commands you used? List and describe them.

    b. Use the oscilloscope to view the PWM signal at the digital port for three different values of PWM between 0 and 255. Sketch the square waves you see on the oscilloscope noting "on" and "off" times.

5. Program something unique (heartbeat pattern, morse code, ...) for your external LED and describe what you did along with commands utilized.