1.)Aside from troubleshooting the Arduino library issue I had, I was able to work through most of it. It only took about 4 hours to do. I had problems with problem 4 as well as problem 3 which took most of the time working on them. I used wiki, the datasheet.

2a.) FINISHED. Code is in file

2b.) Page 2 of the datasheet says the operating voltage runs between 1.8 and 5.5 volts. To find the power we use P=IV=(25mA)(5.5V)=137.5mW of power

2c.) Page 2 says the speed grade max is 20MHz when running at 5.5V

3a.) need help with code

3b.) need help with code

4a.)

#define pin3 (1<<3);

pinMode(pin3, OUTPUT);

and

int value = digitalRead(LED\_BUILTIN); //if one is high, 0 otherwise

4b.) Corresponds to pin 3 (PD2) which is port 2

4c.)PORTB, PORTC, PORTD

4d.) PORTD &= ~(1<<2);

5a.) know V=IR so (1k+2k+3k+R)=(5V)/(.5mA) and R=(5V/.5mA)-6k = 4000 ohms so R4 = 4k ohms

5b.) Va = 5V-(.5mA\*1kohm) = 4.5V, for Vb = 4.5-(.5mA\*2kohm) = 3.5V, and Vc = 3.5-(.5mA\*3kohm) = 2V

5c.) R\_series\_eq = 10k ohms and R\_parallel\_eq = 480ohms

6a.) Offset is 0x28 from page 119

6b.) DDRC= ((((var&0x60)>>3))|DDRC);

6c.) Loading takes 5 cycles (from https://en.wikipedia.org/wiki/Cycles\_per\_instruction)

6d.) 0x08FF and found on page 35