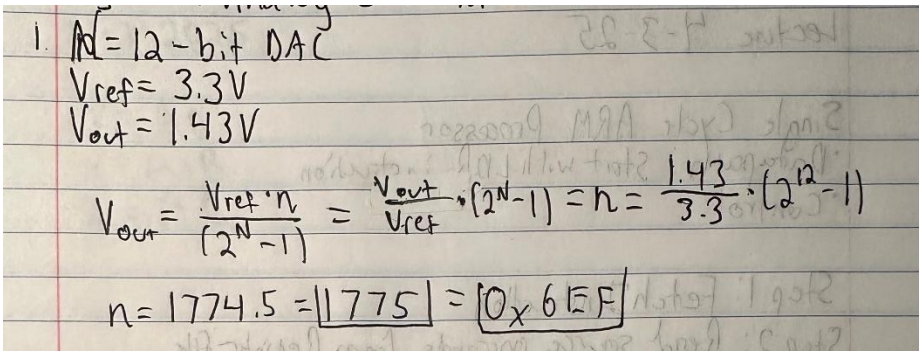
Instruction:

In general, these tasks will use some equations and examples we discussed during the lecture but may require rearranging those equations or some outside searching as well. You may search for other equations and examples to help you as necessary but are requested to avoid searching for (or asking ChatGPT for) exact solutions to these problems without gaining an understanding of the required processes.

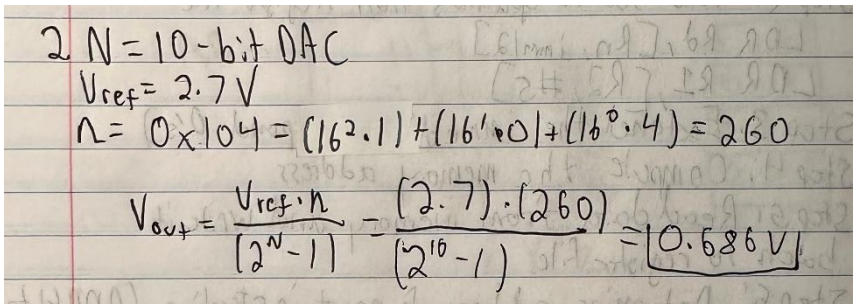
It is recommended that you focus on completing the experiment first and complete this if time permits afterwards or outside of lab hours if necessary.

1 Digital to Analog Converter

1. Consider a 12-bit DAC with a reference voltage of 3.3V. What input code will result in an output of 1.43V?

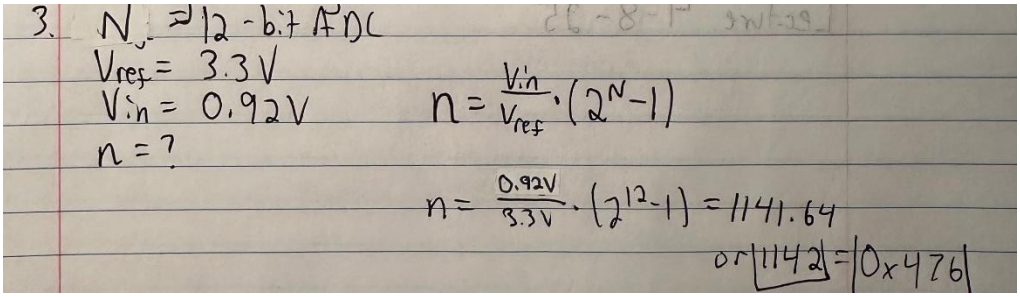


2. Consider a 10-bit DAC with a reference voltage of 2.7V. Given that the input code is 0x104, what is the output voltage?



2 Analog to Digital Converter

3. Consider a 12-bit ADC with a reference voltage of 3.3V. Given an input voltage of 0.92V, what will the output code be?



4. Consider an 8-bit ADC with a reference voltage of 2.7V. What input voltage range will lead to an output code of 0x34?