

1. Consider a system where the DAC is updated every 4us (250 kHz) with a value from a 200-element wave table containing a single cycle of a waveform. What would be the frequency of the output wave?

$$T = 200 * 4 \text{ us} = 800 \text{ us}; f = 1/T = 1/(800 \text{ us}) = 1250 \text{ Hz}$$

2. Consider that the ADC in 12-bit mode divides the input voltage range (0-3V) into 4096 steps (where 0V is 0, and 3V is 4095).

- **What is the voltage/measurement resolution (how much does the voltage change per bit) of the ADC?** 4096 steps, range = 0-3V $\rightarrow 3V/4096 \text{ steps} = 732 \text{ (micro)V}$
- **What would be the ADC output value (nearest integer) if the input voltage was 1.75V?**
 $1.75 \text{ V}/[732 \text{ (microV)}] = 2930 \text{ number of taps}$