

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?

$$\textcircled{1} \quad T = 4 \mu\text{s} \cdot 200 = 800 \mu\text{s} \quad f = \frac{1}{800 \mu\text{s}} = 1.250 \text{ kHz}$$

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?
- What would be the ADC output value (nearest integer) if the input voltage was 1.75V?

$$\frac{3\text{V}}{4096} \approx 0.007324\text{V} \\ \approx 0.732 \text{mV}$$

$$\textcircled{2} \quad \begin{array}{c} 1.75\text{V} \\ \xrightarrow{\quad} \\ .0007324 \end{array} \approx 2389$$