# 6.003: Signal Processing

## CTFS "Properties"

**Synthesis:**

$$x(t) = x(t+T) = \sum_{k=-\infty}^{\infty} X[k] e^{j\frac{2\pi kt}{T}}$$

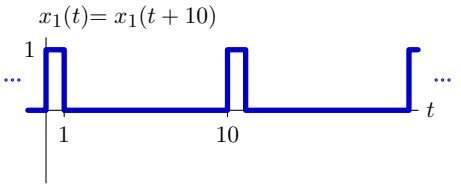
**Analysis:**

$$X[k] = \frac{1}{T} \int_{T} x(t) e^{-j\frac{2\pi kt}{T}} dt$$

*2 March 2021*

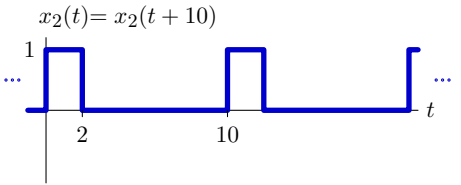
# Problem 1

Determine the FSC, $X_1[\cdot]$, for $x_1(\cdot)$ shown below:



# Problem 2

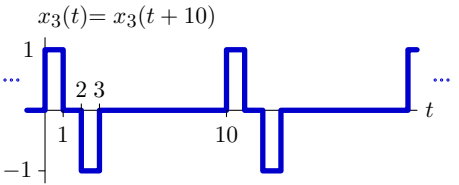
Determine the FSC, $X_2[\cdot]$, for $x_2(\cdot)$ shown below:



# Problem 2

# Problem 3

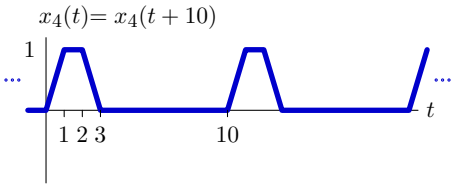
Determine the FSC, $X_3[\cdot]$, for $x_3(\cdot)$ shown below:



# Problem 3

# Problem 4

Determine the FSC, $X_4[\cdot]$, for $x_4(\cdot)$ shown below:



# Problem 4