

Spring 2019 - Quiz 1  
ECE 301: Signals and Systems

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**Problem 1**

For  $x(t)$  given in figure 1 sketch

a  $x(-2t + 4)$

b  $x(\frac{t}{2} - 2)$

c  $x(-t)$

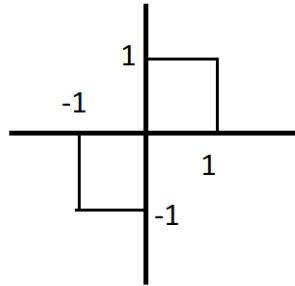


Figure 1:  $x(t)$

## Problem 2

- a Which of the 2 discrete time frequencies is higher?  $\omega_0 = 11\pi$ ,  $\omega_0 = \frac{21}{2}\pi$ . Why?
- b How many different signals are in the set  $\{e^{j\frac{3\pi k}{2}n}, k \text{ is an integer}\}$ ? Justify your answer.
- c Consider the signal  $x[n] = e^{j\frac{3\pi}{4}n} + e^{j\frac{5\pi}{2}n}$ . Is the signal periodic? If it is periodic, find its fundamental period.