CpE 3203L – Digital Signal Processing

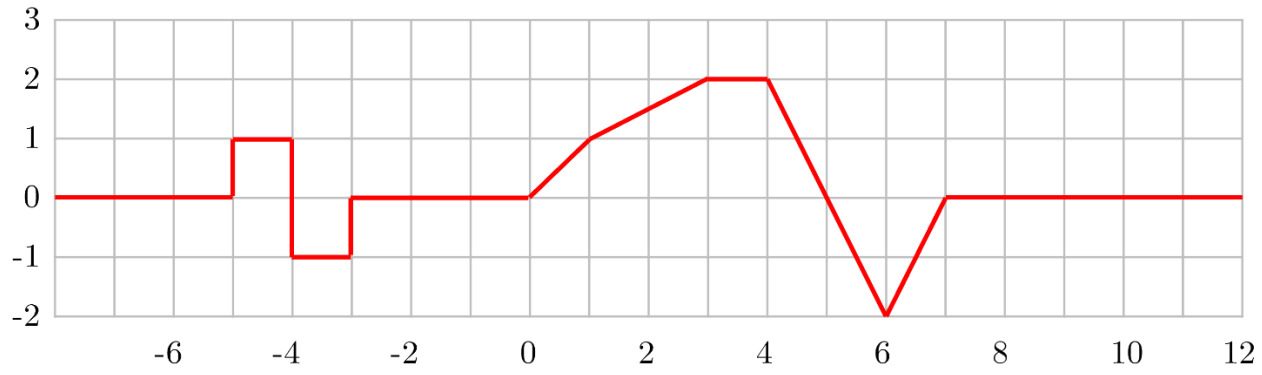
Lab Exercise 1 : Independent Variable Manipulation

Name: _____ ID #: _____ Score: _____
Instructor: _____ Schedule: _____ Date: _____

Objectives:

- Solve exercises on independent variable manipulation by hand
- Create MATLAB function that represents a signal

1. Given the signal



a. Find the piece-wise function definition of the signal $f(t)$

$f(t)=$

b. Graph $f(-0.5(t-2)+2)$. (Note: Be sure to write tick labels for the horizontal and vertical axes and adjust the scale as you see fit.

c. Find the piece-wise function definition of the signal graphed in 1b.

$g(t)=$

2. Create a MatLab function with the function prototype

```
function y = foo(t)
```

that represents the function that was determined in 1a. Make sure that the function is able to receive and return vectors such that f([0 0.2 0.4 0.6 0.8 1]) will return a vector of the same size with elements corresponding to $f(t)$.

3. Plot `foo` over the same range as in 1b and determine if your graph is reconstructed in Matlab. (Note: You may have to adjust the vector `t` to see the discontinuities clearly).