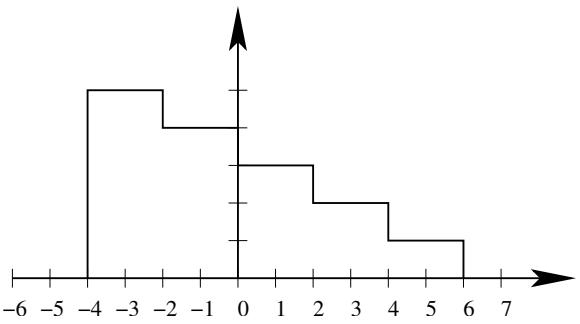
ECE 3793
Homework 1

Spring 2017 Dr. Havlicek

1. Consider the continuous time signal $x(t)$ shown below:



Given $x(t)$, in this problem we examine the task of constructing the graph of the signal $x(-2t+1)$.

   (a) For suitable values of $t \in [-6, 6]$, construct a table with three columns. The first column should be t and the second column should be $-2t+1$. For each domain value shown in the second column, use the graph above to determine the value of $x(-2t+1)$ and place it in the third column.

   (b) From the table constructed in part (a), graph the signal $x(-2t+1)$.

   (c) Now construct the graph of $x(-2t+1)$ **directly** from the graph of $x(t)$ by using the *incorrect* rule of thumb "scale first, then shift."

   (d) Construct the graph of $x(-2t+1)$ **directly** from the graph of $x(t)$ by using the *correct* rule of thumb "shift first, then scale."

   (e) Briefly explain why the two methods in parts (c) and (d) give different results and why the method in part (d) is *correct*, whereas the method in part (c) is *incorrect*.

2. Text problem 1.3.

3. Text problem 1.4, parts (a) and (d) **only**.

4. Text problem 1.21, parts (c) and (d) **only**.

5. Text problem 1.23, part (a) **only**.

6. Text problem 1.24, part (a) **only**.

Warning: Do not blindly trust the answers in the book. Some of them are wrong.

DUE: 1/27/2017