

## **PROBLEM:**

Let x(t) be a triangular pulse defined by

 $x(t) = \begin{cases} 1 - |t| & ; |t| < 1 \\ 0 & ; else \end{cases}$ 

- (a) By taking the derivative of x(t), use the derivative property to find the Fourier transform of x(t). Hint: Express the derivative as a sum of two pulses, one with an amplitude of one, and the other with an amplitude of minus one. From your table of Fourier transforms, and the delay property, you should be able to write down the transform without any integration.
- (b) Find the Fourier transform of x(t) by differentiating x(t) twice and using the derivative property. Compare you results.

McClellan, Schafer and Yoder, Signal Processing First, ISBN 0-13-065562-7. Prentice Hall, Upper Saddle River, NJ 07458. © 2003 Pearson Education, Inc.





McClellan, Schafer, and Yoder, Signal Processing First, ISBN 0-13-065562-7. Prentice Hall, Upper Saddle River, NJ 07458. © 2003 Pearson Education, Inc.