EE 362: Signals and Systems Name: ……..

Spring 2019

Homework #7 (Due: Thursday, March 14, 2019)

- Circle or box your answer (don't forget units).
- **Show** your steps.
- Use 8.5" x 11" paper, and trim off any ragged edges.
- **Staple** your work together and write your name neatly.

(1) A continuous-time signal $x(t)$ has Fourier transform

$$X(\omega) = \frac{1}{j\omega + b}$$

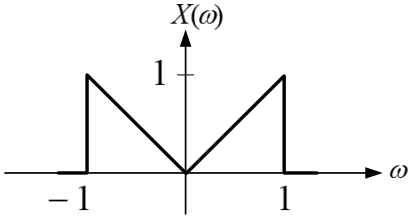
where $b$ is a constant. Determine Fourier transform $V(\omega)$ of the following signals: [2 points each; 6 points total]

(a) $v(t) = x(-t)$

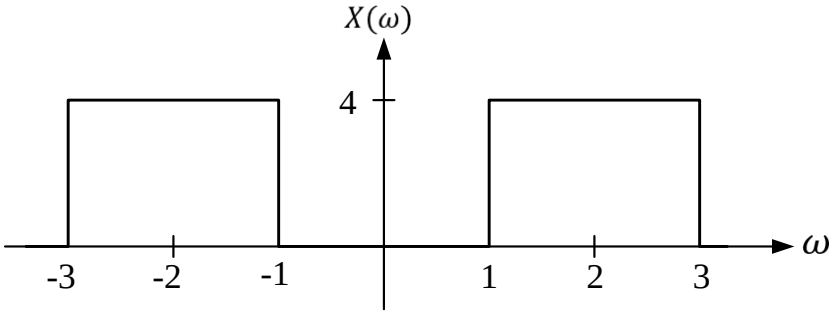
(b) $v(t) = \frac{dx(t)}{dt} + 3\frac{d^2x(t)}{dt^2}$

(c) $v(t) = x(t) * x(t)$

(2) Compute the inverse Fourier transform of the following frequency functions. [8 points each; 16 points total]




(a)




(b)