

Name ANSWERS

EE-3221 - Dr. Durant - Quiz 1
Winter 2020-'21, Week 1

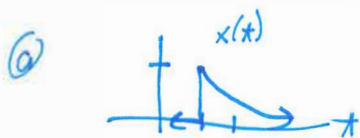
1. (3 points) Draw the basic DSP system block diagram showing the 3 main components in series (or 5 components, if you wish to show additional detail that we will cover later in chapter 6).

Same  practice quiz.

2. (7 points) Using Table 5-6 and Table 5-7...

- Sketch $x(t) = e^{-(t-2)}u(t-2)$
- Find $X(\omega)$, the Fourier transform of $x(t)$
- Sketch the magnitude $|X(\omega)|$.

- (a) $-1/2$ L/R -1 no shift
 (b) -1 only 1 of 2 components gen. correct
 (c) $-3/4$ $|e^{-j\omega}|$ as mag sh. ft, etc.
 -1 symmetry / $|X(\omega)| \rightarrow \infty$



(b) Table 5-6.7a: $e^{-at}u(t) \leftrightarrow \frac{1}{a+j\omega}$
 Table 5-7.4: $x(t-t_0) \leftrightarrow e^{-j\omega t_0} X(\omega)$
 $\therefore X(\omega) = e^{-2j\omega} \frac{1}{1+j\omega}$

(c) $|X(\omega)| = |e^{-2j\omega}| \cdot \left| \frac{1}{1+j\omega} \right| = \left| \frac{1}{1+j\omega} \right| = \frac{1}{\sqrt{\omega^2+1}}$

