

Problem Set 1

Spring 2007

Issued: Wednesday, January 24, 2007**Due:** Thursday, February 1, 2007Reading in *Lathi*

1/23/07 — Sections B1.2 through B.3

1/25/07 — Sections 1.2 and 1.4

1/30/07 — Sections 1.6-1.7

2/1/07 — Sections 1.8

Problem B.5 in *Lathi***Problem B.7** in *Lathi***Problem B.10** in *Lathi*

Do part b only.

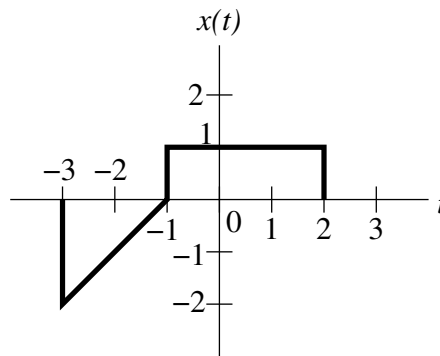
Problem 1.4-4 in *Lathi*

Do parts a, b, c, and f.

ECE-220 Problem 1Consider $X(\omega)$, a complex function of the real variable ω :

$$X(\omega) = \frac{2 - j5\omega}{1 + j3\omega}.$$

- (a) Express $X(\omega)$ in Cartesian form and find its real and imaginary parts.
- (b) Express $X(\omega)$ in polar form and find its magnitude $|X(\omega)|$ and its phase $\angle X(\omega)$.

ECE-220 Problem 2Consider the signal $x(t)$ shown below:

Make clearly-labeled sketches of each of the following signals.

- (a) $x(-t)$
- (b) $x(t - 4)$
- (c) $x(2 - t)$
- (d) $x(t/3)$
- (e) $x(2t)$
- (f) $x(2t - 4)$

ECE 220 SIGNALS & SYSTEMS I

Homework Cover Sheet

Problem Set #: _____

Name: _____

Names of other students I discussed this problem set with:

Provide a brief (one-sentence) description of how much of each problem has been completed:

Amount of time spent on this problem set: _____

If problem set is incomplete, how much additional time would be needed to complete it? _____