

Problem Set 1

Spring 2008

Issued: Wednesday, January 23, 2008**Due:** Wednesday, January 30, 2008

Reading in *Oppenheim/Willsky/Nawab*

1/23/08 — Sections 1.0-1.1 and complex number review on p. 71

1/28/08 — Sections 1.2-1.4

1/30/08 — Sections 1.5-1.6

Problem 1.21 in *Oppenheim/Willsky/Nawab***Problem 1.49** in *Oppenheim/Willsky/Nawab*

Do parts b, c, f, j and l.

Problem 1.51 in *Oppenheim/Willsky/Nawab*

Do parts a, b, c, d.

Problem 1.56 in *Oppenheim/Willsky/Nawab*

Do parts a, d, and e.

ECE-220 Problem 1-1Consider $X(\omega)$, 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 $\angle X(\omega)$.