These problems are practice problems. Do **not** turn in your solutions.

Relevant Reading: Chapter 8 (all of it)
Relevant Items in the DSP First CD: Homework problems: Explore all the problems in Chap. 8

1. Consider the system function $H(z)$ for a second-order IIR filter with complex poles:

   $$H(z) = \frac{z^2}{(z - p)(z - p^*)},$$

   where $p = re^{j\theta}$. Verify that

   $$h[n] = \frac{1}{\sin \theta} r^n \sin(n\theta + \theta) u[n].$$

2. Textbook, Problem 8.10 (b) and (c), pp. 312-3.
   Hint: Use the delay property of z-transform.

3. Textbook, Problem 8.12, p. 313.

   And add: (f) Calculate $y[n]$ for

   $$x[n] = \cos(2\pi n/3)u[n].$$
