EE 322 Advanced Electronics, Spring 2013
Quiz 8, April 22, 2013

1. Write the most general expression for a 4th order filter function.

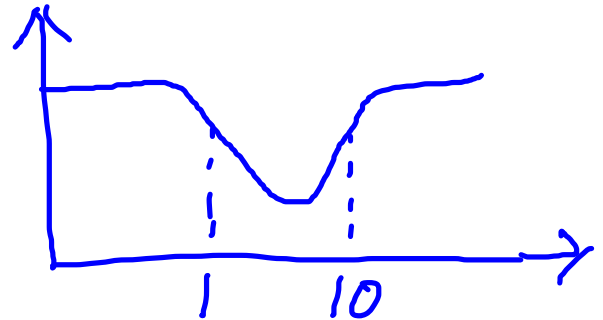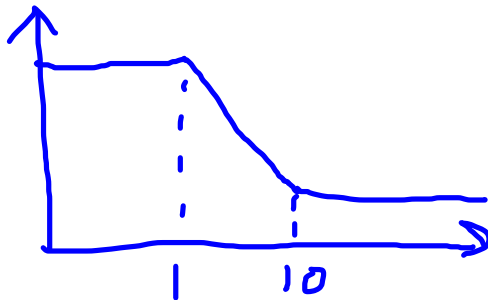$$T(s) = \frac{a_4 s^4 + a_3 s^3 + a_2 s^2 + a_1 s + a_0}{s^4 + b_3 s^3 + b_2 s^2 + b_1 s + b_0}$$

2. Write the most general expression for a second-order low-pass filter with the steepest possible slope at high frequency.

$$T(s) = \frac{a_0}{s^2 + b_1 s + b_0}$$

3. Sketch the amplitude (log-log) and phase behavior (log-lin) of this phase function. Label the frequencies of the knees.

POLE AT $W = 1$
ZERO AT $W = 10$

$$T(s) = \frac{10 + s}{1 + s}$$

4. Sketch the amplitude and phase behavior of a filter which has one pole, at $-10\,\text{s}^{-1}$.

THAT WOULD BE $T(s) = \dfrac{a_0}{10 + s}$