

H.W. #23 EE 220 Spring 2017

Show your work for credit!

1. Determine, using phasor analysis, the current that flows in the circuits from HW #21, problem 4, and plot along with  $V_{in}$  in the time-domain. Use LTspice to verify your hand calculations and plots. (4 points)
2. Determine and plot, using AC frequency analysis, the magnitude and phase responses of  $V_{out}/V_{in}$  for the circuits in HW #21, problem 4 (8 equations and correspondingly 8 plots). Verify with LTspice. (8 points)
3. Determine, using phasor analysis,  $V_{out}$  in the following integrator circuit. Note that the 100k resistor is used to ensure the DC gain of the integrator isn't infinite. The 100k can be neglected (remove from the circuit) in the phasor (or AC) analysis because its impedance is much larger than the impedance of the capacitor at 1 kHz. Sketch  $V_{out}$  and  $V_{in}$  on the same plot in the time-domain. Verify your hand calculations and plots with LTspice. (3 points)

