1. Redo practice problem 9.9 in Alexander and Sadiku, 5h Edition. Changes: $4\,\Omega \rightarrow 3\,\Omega$, $0.2\,\text{H} \rightarrow 0.3\,\text{H}$. Other values from book.
2. Redo practice problem 9.11 in Alexander and Sadiku, 5h Edition. Change: $10\,\Omega \rightarrow 8\,\Omega$. Other values from book.
3. (D-87) Given:

$$y_1(t) = V_1 \cos(\omega t + \phi_1) \quad (1)$$
$$y_2(t) = V_2 \cos(\omega t + \phi_2) \quad (2)$$

   Find V and ϕ for $y(t) = y_1(t) + y_2(t) = V\cos(\omega t + \phi)$. Use $V_1 = 6.9\,\text{V}$, $V_2 = -8.7\,\text{V}$, $\phi_1 = -20$ degrees and $\phi_2 = 72$ degrees.

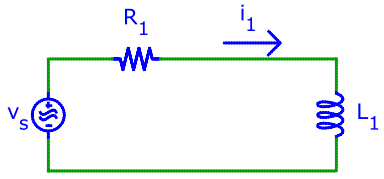
   $y =$ [ ]

   Report the magnitude of the amplitude (positive!) in V and phase in degrees, separated by a comma (e.g. `2V, -25deg`).

4. (D-88) Find the phasor $I_1(s)$ of the steady-state response $i_1(t)$ of the circuit for $v_s = V_s\cos(2\pi f t)$. Use $V_s = 4.9\,\text{V}$, $f = 9.8\,\text{MHz}$, $R_1 = 44\,\text{k}\Omega$, and $L_1 = 3.6\,\text{mH}$.

   $I_1(s)$ (complex) [ ]

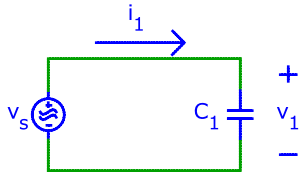
   magnitude [A], phase [deg] of $I_1(s)$ [ ]



5. (D-90) Derive phasors for the impedance $Z_1(s) = V_1(s)/I_1(s)$ and admittance $Y_1(s) = I_1(s)/V_1(s)$ for $v_s(t) = V_s\cos(2\pi f t)$. Use $V_s = 2.9\,\text{V}$, $f = 8.2\,\text{MHz}$, $C_1 = 3.8\,\text{pF}$. The unit for admittance is Siemens (S).

   magnitude [Ω], phase [deg] of $|Z_1(s)|$ [ ]

   magnitude [S], phase [deg] of $|Y_1(s)|$ [ ]



6. (D-93) What are the magnitude and phase of the impedance of a capacitor $C_1 = 8.2\,\text{pF}$ at $f_1 = 1\,\text{kHz}$ and $f_2 = 1\,\text{GHz}$?

Frequency	Magnitude [Ω], Phase [deg]
f_1	[ ]
f_2	[ ]

   How do capacitors behave at DC ($f = 0$) and very high frequency ($f \rightarrow \infty$)? What about inductors?

7. (D-94) A resistor $R = 7.3\,\text{k}\Omega$ and capacitor $C = 2.2\,\text{nF}$ connected in parallel have a 1 V sinusoidal signal across. At what frequency are the magnitudes of the currents flowing through the two elements equal?

   Note: unless otherwise specified, report frequencies always in Hertz (Hz, kHz, etc), not in radians per second.