1) a) Find $i_t(t)$ in the sinusoidal steady-state (SSS).
   b) Calculate the complex power supplied by the voltage source.
   c) Calculate the average power on the resistor.
   d) Calculate the average stored energy in the inductor.
   e) Calculate the reactive power of the current source.

2) The load absorbs
   $L_1$: 10 kW, unity power factor
   $L_2$: 20 kVA, 0.8 p.f. lagging.

   a. Find the voltage at the sending end (source side) of the line.
   b. Find the power factor at the source side. Also compute the active and reactive power supplied by the source.

3) Following circuit is given. The information about the loads $L_1$, $L_2$ and the source are as follows.

   $S_{source supplied} = 9 + j7$ (VA)
   $L_2$: $|S_2| = 5$ (VA), $pf_2 = 0.6$ leading
   $|I_{rms}| = 2$ (A)

   a. Find the complex power of $L_1$, load voltage, $|V_{L1rms}|$, $|V_{L2rms}|$ and the $pf$ (power factor) of $L_1$, $L_2$ combination.
   b. Connect an element in parallel with $L_1$ and $L_2$ such that overall $pf$ of the load is unity. Assume that $|V_t|$ is the same as in part (a).