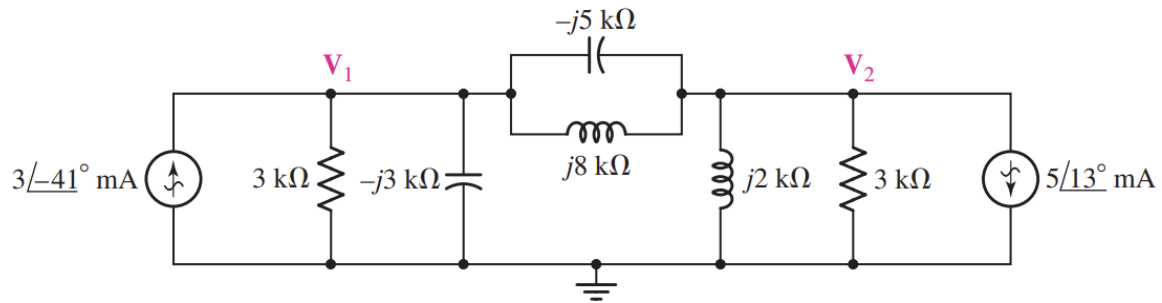


Tutorial Sheet 2

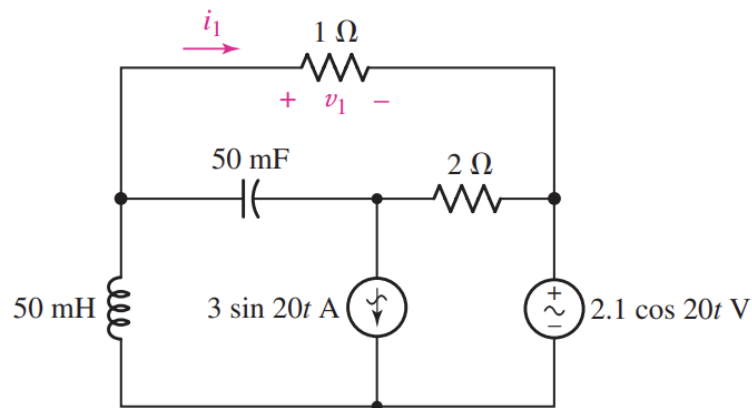
Q.1.

Determine the individual contribution each current source makes to the two nodal voltages V_1 and V_2 as represented in Fig. 10.67.



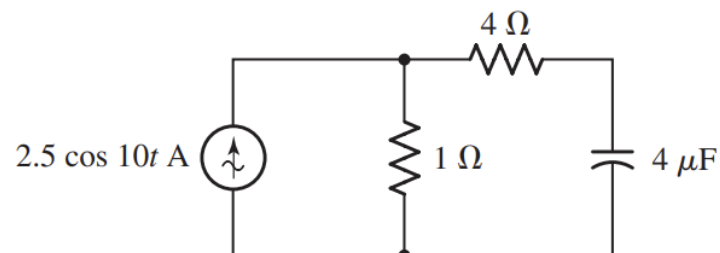
Q.2.

Determine the individual contribution of each source in Fig. 10.72 to the voltage $v_1(t)$.



Q.3.

Assuming no transients are present, calculate the power absorbed by each element shown in the circuit of Fig. 11.27 at $t = 0$, 10, and 20 ms.



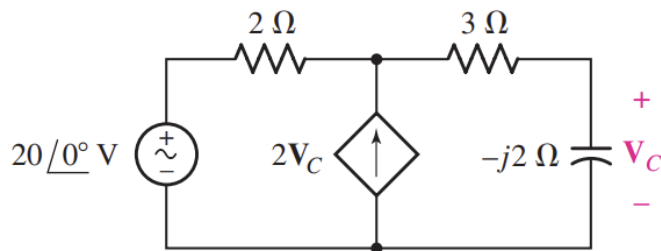
Q.4.

Calculate the average power delivered by the current $4 - j2$ A to

$$\mathbf{Z} = \frac{1.5 \angle -19^\circ}{2 + j} \text{ k}\Omega$$

Q.5.

Determine the average power supplied by the dependent source in the circuit of Fig. 11.32.

**Q.6.**

An unknown load is connected to a standard European household outlet (240 V rms, 50 Hz). Determine the phase angle difference between the voltage and current, and whether the voltage leads or lags the current, if
 (a) $\mathbf{V} = 240 \angle 243^\circ$ V rms and $\mathbf{I} = 3 \angle 9^\circ$ A rms; (b) the power factor of the load is 0.55 lagging; (c) the power factor of the load is 0.685 leading; (d) the capacitive load draws 100 W average power and 500 volt-amperes apparent power.