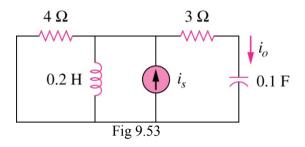
Part 1: Analysis with single source

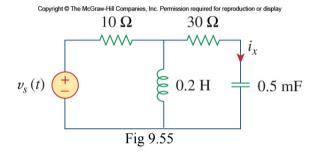
Q1 Alexander P9.46

If $i_s = 5 \cos(10t + 40^\circ)$ A in the circuit of Fig. 9.53, find i_o



Q2 Alexander P9.48

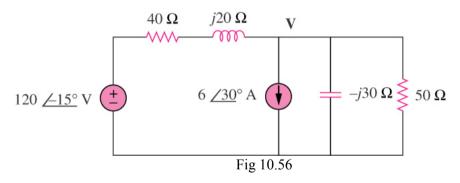
For the circuit shown in Fig 9.55, given that $v_s(t) = 20 \sin(100t - 40^\circ) \text{ V}$, find i_x



Part 2: Analysis with multiple sources of same frequency

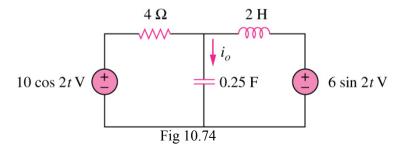
Q3 Alexander P10.7

Find V in the circuit of Fig 10.56



Q4 Alexander P10.25

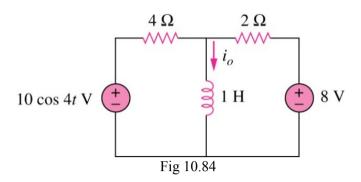
Find io in Fig 10.74



Part 3: Superposition (different source frequencies)

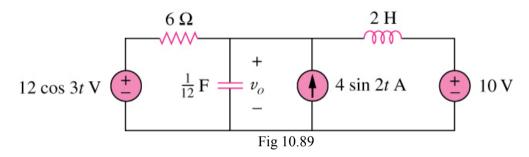
Q5 Alexander P10.40

Find i_o in the circuit of Fig 10.84.



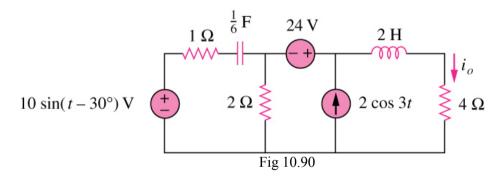
Q6 Alexander P10.46

Find v_0 in the circuit of Fig 10.89.



Q7 Alexander P10.47

Find i₀ in the circuit of Fig 10.99.



Numerical answers

Analysis with single source

Q1 Alexander P9.46

 $i_0 = 2.325 \cos(10t + 94.46^{\circ}) A$

Q2 Alexander P9.48

 $i_x = 0.4338 \cos(100t - 80.6^{\circ}) A$

Analysis with multiple sources of same frequency

Q3 Alexander P10.7

 $V = 124.08 \angle -154^{\circ} V$

Q4 Alexander P10.25

Current: $i_0 = 1.4142 \cos(2t + 45^\circ) A$

Superposition (Different frequency sources)

Q5 Alexander P10.40

Current: $i_0 = 4 + 0.79 \cos(4t - 71.56^\circ) A$

Q6 Alexander P10.46

Voltage: $v_0 = 10 + 21.45 \sin(2t + 26.56^\circ) + 10.73 \cos(3t - 26.56^\circ) V$

Q7 Alexander P10.47

Current: $i_0 = 4 + 0.504 \sin(t + 19.1^\circ) + 0.3352 \cos(3t - 76.43^\circ)$ A