

**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  $i_o$

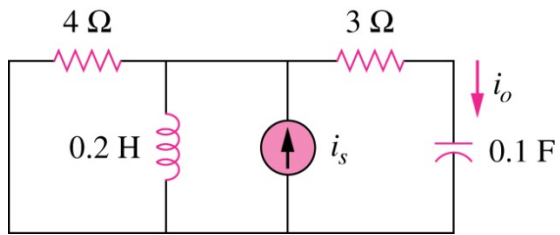


Fig 9.53

**Q2 Alexander P9.48**

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

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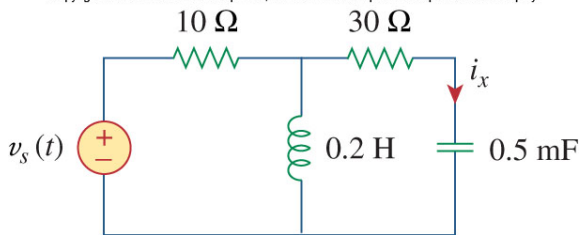


Fig 9.55

**Part 2: Analysis with multiple sources of same frequency****Q3 Alexander P10.7**

Find  $V$  in the circuit of Fig 10.56

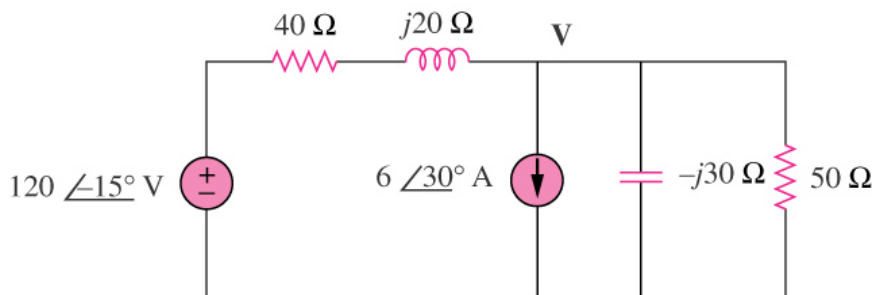


Fig 10.56

**Q4 Alexander P10.25**

Find  $i_o$  in Fig 10.74

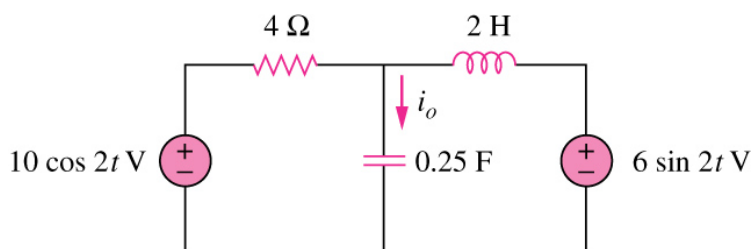


Fig 10.74

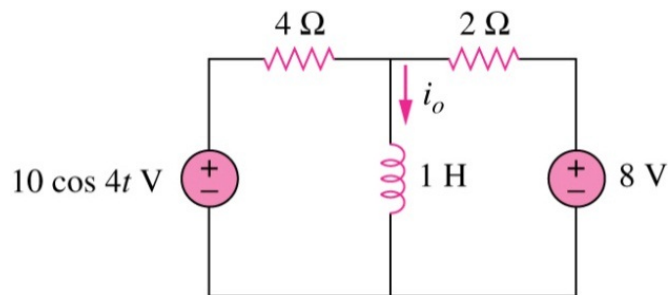
**Part 3: Superposition (different source frequencies)****Q5 Alexander P10.40**Find  $i_o$  in the circuit of Fig 10.84.

Fig 10.84

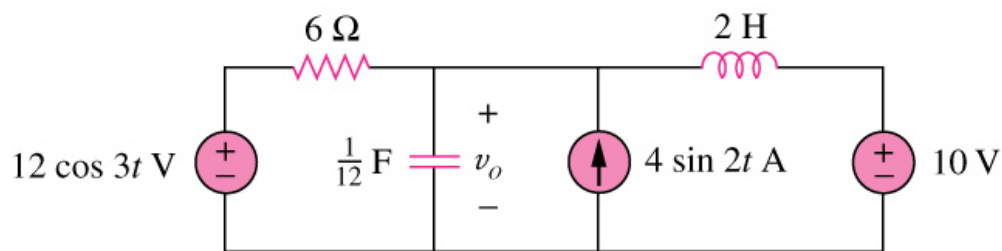
**Q6 Alexander P10.46**Find  $v_o$  in the circuit of Fig 10.89.

Fig 10.89

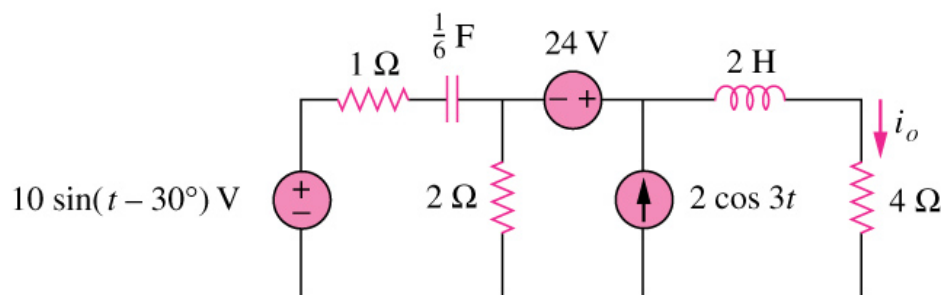
**Q7 Alexander P10.47**Find  $i_o$  in the circuit of Fig 10.99.

Fig 10.90

**Numerical answers****Analysis with single source****Q1 Alexander P9.46**

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

**Q2 Alexander P9.48**

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

**Analysis with multiple sources of same frequency****Q3 Alexander P10.7**

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

**Q4 Alexander P10.25**

$$\text{Current: } i_o = 1.4142 \cos(2t + 45^\circ) \text{ A}$$

**Superposition (Different frequency sources)****Q5 Alexander P10.40**

$$\text{Current: } i_o = 4 + 0.79 \cos(4t - 71.56^\circ) \text{ A}$$

**Q6 Alexander P10.46**

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

**Q7 Alexander P10.47**

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