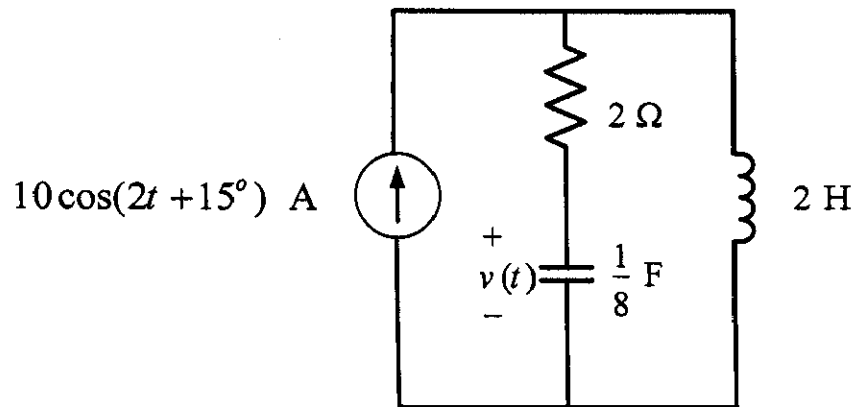
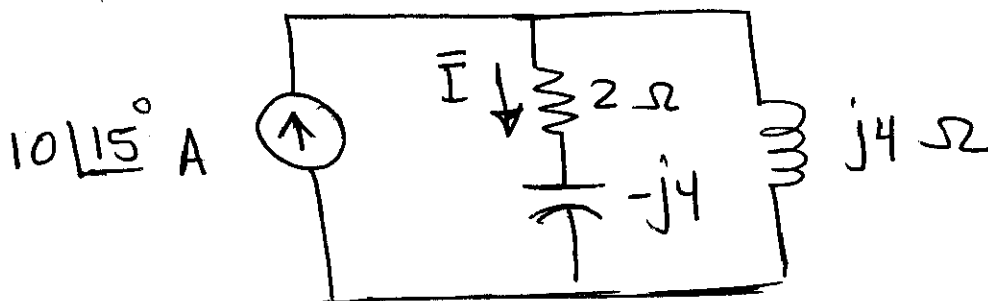


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For the circuit shown above, find the voltage $v(t)$?

Phasor domain



$$\begin{aligned} \bar{I} &= \frac{j4}{(2-j4)+j4} 10 \angle 15^\circ = (j2) 10 \angle 15^\circ \text{ A} \\ &= (2 \angle 90^\circ) (10 \angle 15^\circ) \\ &= 20 \angle 105^\circ \text{ A} \end{aligned}$$

$$\begin{aligned} \bar{V} &= (-j4) \bar{I} = (4 \angle -90^\circ) (20 \angle 105^\circ) \\ &= 80 \angle 15^\circ \text{ V} \end{aligned}$$

$$v(t) = 80 \cos(2t + 15^\circ) \text{ V}$$