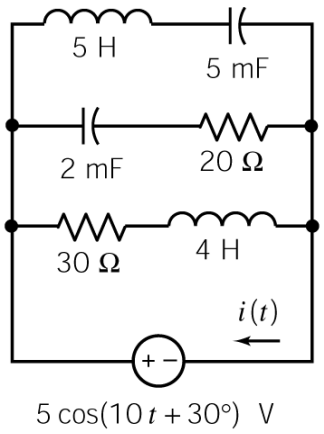
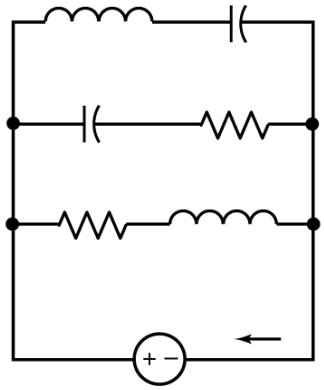
Time Domain

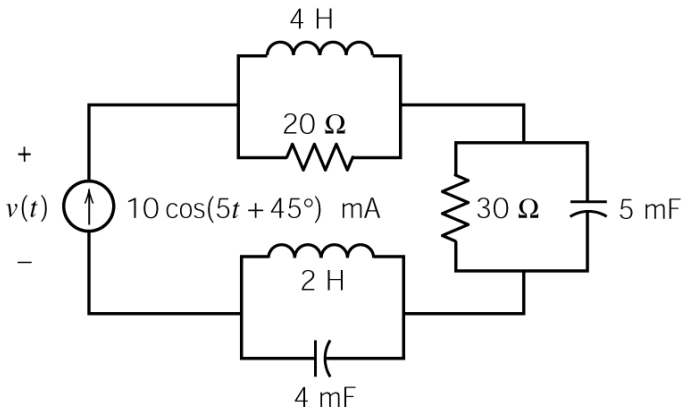


$5\cos(10t + 30°)$ V

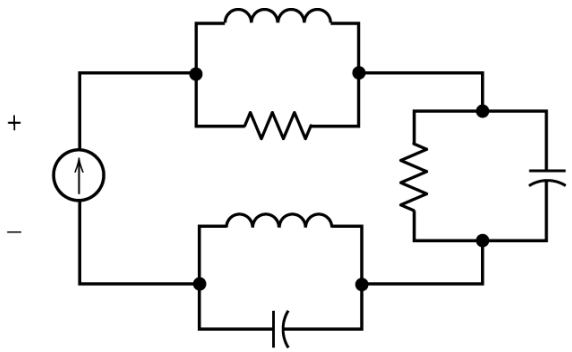
Frequency Domain

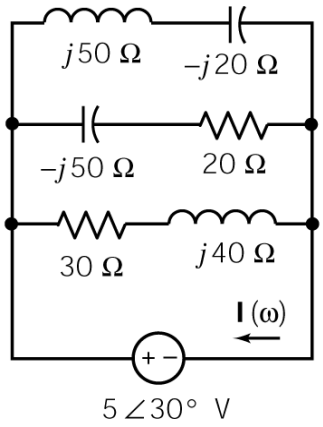


Time Domain



Frequency Domain





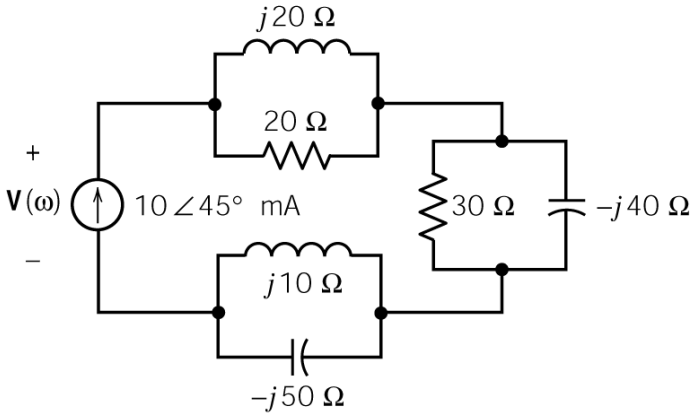
$$\mathbf{I}(\omega)=\frac{5\angle 30^\circ}{30+j40}+\frac{5\angle 30^\circ}{20-j50}+\frac{5\angle 30^\circ}{j50-j20}$$

$$=0.100\angle -23.1^\circ+0.0923\angle 98.2^\circ+0.1667\angle -60^\circ$$

$$=0.186\angle -29.5^\circ \text{ A}$$

so

$$i(t)=0.186\cos(10t-29.5^\circ)\text{ A}$$



$$\mathbf{V}=0.01\angle 45^\circ\left[(20\,\|\,j20)+(30\,\|\,(-j40))+(j10\,\|\,(-j50))\right]$$

$$=0.01\angle 45^\circ\left[\frac{20(j20)}{20+j20}+\frac{30(-j40)}{30-j40}+\frac{j10(-j50)}{j10-j50}\right]$$

$$=0.01\angle 45^\circ\left[14.14\angle 45^\circ+24\angle -36.9^\circ+12.5\angle 90^\circ\right]$$

$$=0.01\angle 45^\circ\left[10+j10+19.2-j14.4+j12.5\right]$$

$$=0.303\angle 60.5^\circ \text{ V}$$

so

$$v(t)=0.303\cos(5t+60.5^\circ)\text{ V}$$