



$z_c = \frac{1}{j\omega C} = \frac{1}{j(3)\frac{1}{6}} = -j2\Omega$
 $z_L = j\omega L = j3 \cdot 4 = j12\Omega$
 $z_T = (3 + 10j)\Omega$
 $= 10.44 \angle 73.3^\circ$

$\vec{I} = \frac{6 \angle 0^\circ}{10.44 \angle 73.3^\circ} = 0.575 \angle -73.3^\circ$

	R	C	L	Source
z	3	$-2j$	$12j$	N/A
\vec{I}	$0.575 \angle -73.3^\circ$	$0.575 \angle -73.3^\circ$	$0.575 \angle -73.3^\circ$	$0.575 \angle -73.3^\circ$
\vec{V}	$1.72 \angle -73.3^\circ$	$1.15 \angle -163.3^\circ$	$6.9 \angle 16.7^\circ$	$6 \angle 0^\circ$
P_{avg} $\frac{1}{2} V_m I_m \cos \theta$	$\frac{1}{2} (1.575)(1.15) \cos 0^\circ = 0.494 W$	0	0	$\frac{1}{2} (6)(0.575) \cos 73.3^\circ = -0.494 W$
$V_{rms} = V_e$	$\frac{1.72}{\sqrt{2}}$	$\frac{1.15}{\sqrt{2}}$	$\frac{6.9}{\sqrt{2}}$	$\frac{6}{\sqrt{2}}$
$I_{rms} = I_e$	$\frac{0.575}{\sqrt{2}}$	$\frac{0.575}{\sqrt{2}}$	$\frac{0.575}{\sqrt{2}}$	$\frac{0.575}{\sqrt{2}}$
$P_{avg} = V_e I_e \cos \theta$	0.494 W	0 W	0 W	-0.494 W
Apparent Power $V_e I_e$	0.494	0.33	1.98	-1.72
\vec{V}_{rms}	$\frac{1.72}{\sqrt{2}} \angle -73.3^\circ$	$\frac{1.15}{\sqrt{2}} \angle -163.3^\circ$	$\frac{6.9}{\sqrt{2}} \angle 16.7^\circ$	$\frac{6}{\sqrt{2}} \angle 0^\circ$
\vec{I}_{rms}	$\frac{0.575}{\sqrt{2}} \angle -73.3^\circ$	$\frac{0.575}{\sqrt{2}} \angle -73.3^\circ$	$\frac{0.575}{\sqrt{2}} \angle -73.3^\circ$	$\frac{0.575}{\sqrt{2}} \angle -73.3^\circ$
$P_{avg} = \text{Re}[\vec{V}_{rms} \vec{I}_{rms}^*]$	0.494 W	0 W	0 W	-0.494 W
R	3	0	0	N/A
X	0	-2	12	N/A
$P = V_e I_e \cos \theta$	0.494 W	0 W	0 W	-0.494 W
$Q = V_e I_e \sin \theta$	0	-0.33	1.98	-1.64
$S = V_e I_e$	0.494	0.33	1.98	-1.72
$\vec{S} = P + jQ$	0.494	-0.33j	1.98j	-0.494 - 1.64j
$\vec{S} = \frac{1}{2} \vec{V} \vec{I}^*$	0.494	$0.33 \angle -90^\circ$	$1.98 \angle 90^\circ$	$-1.72 \angle 73.3^\circ$