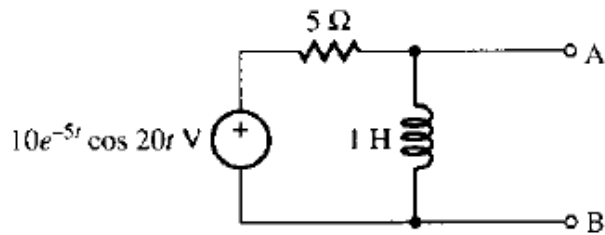


**14.11** Find the  $s$ -domain Thévenin equivalent of the circuit of Figure P14.11.



**Figure P14.11**

```
clc, clear, close all
format short g
syms t s

vf = 10*exp(-5*t)*cos(20*t); %[V]
vm = 10; %magnitud
s = -5+20*j; %frecuencia compleja

z1 = 5;
z2 = s;
```

primero calculamos la tension de thevenin que esta dada por el siguiente divisor de tensión

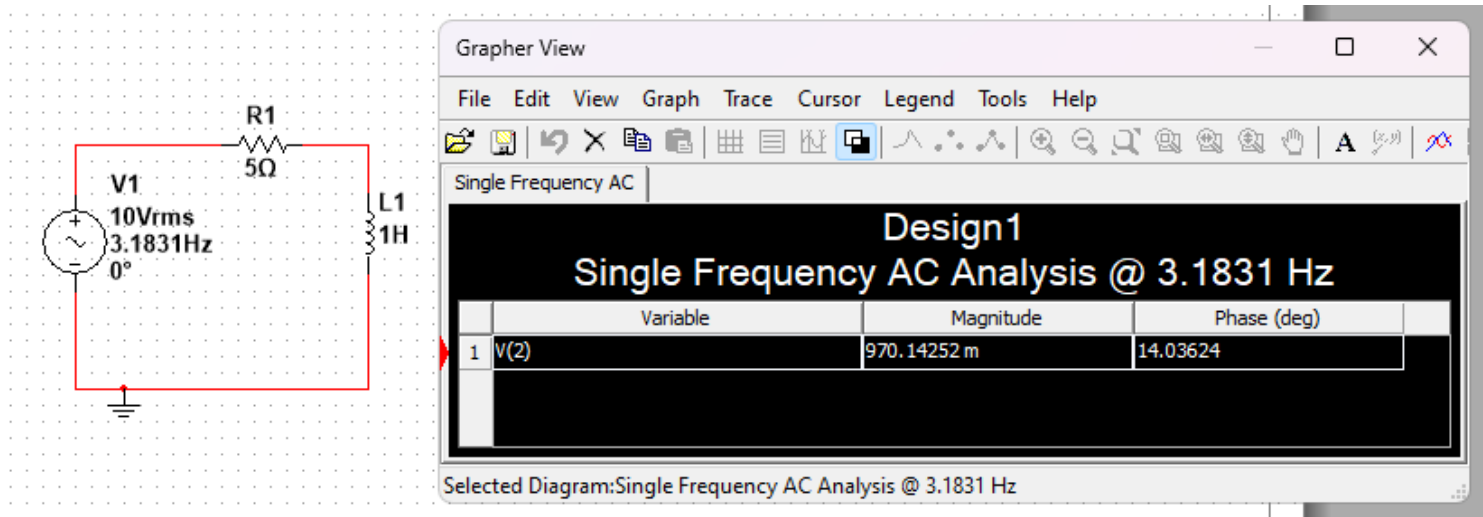
```
vth = (z2/(z1+z2))*vm %complejo
```

```
vth =
    10 +    2.5i
```

```
vth_fasor = [num2str(abs(vth)), ' L', num2str(angle(vth)*180/pi), '°', ' V'] %fasor
```

```
vth_fasor =
'10.3078 L14.0362° V'
```

Lo verificamos en el simulador



Ahora calculamos la resistencia thevenin

$$r_{th} = 1 / (1 / (z_1) + 1 / (z_2))$$

$$r_{th} = 5 + 1.25i$$

$$r_{th\_polar} = [\text{num2str}(\text{abs}(r_{th})), ' \angle ', \text{num2str}(\text{angle}(r_{th}) * 180 / \pi), '^\circ', ' \Omega'] \% \text{polar}$$

$$r_{th\_polar} = '5.1539 \angle 14.0362^\circ \Omega'$$