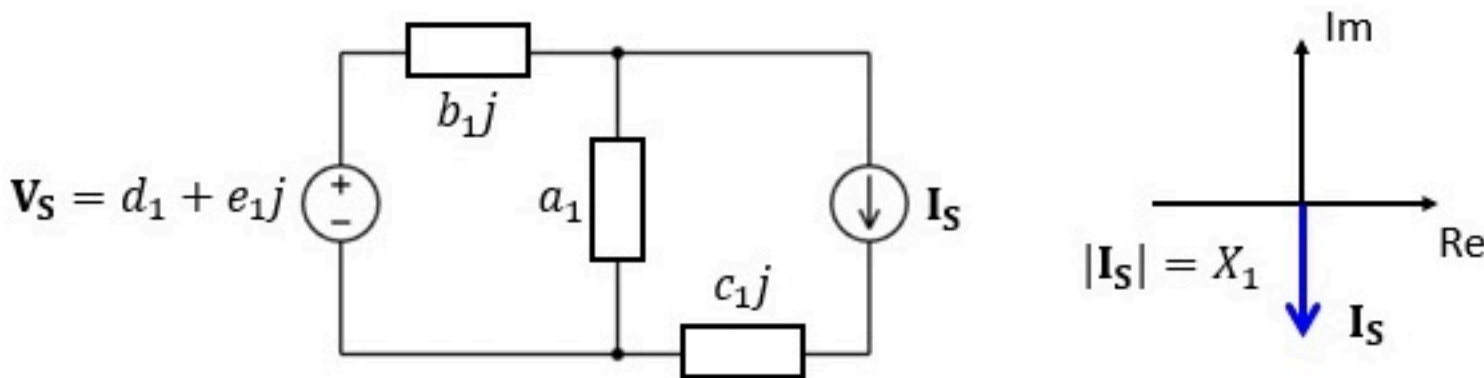


Phasors 017

Problem has been graded.

The circuit below represents an AC circuit in steady-state in the phasor domain (for the complex numbers, you may assume units are V, A, Ω , etc. as appropriate). Both sources in the circuit have the same ω , but you are not told the value of ω . Each box represents the impedance of a single circuit element (a resistor, capacitor or inductor).

- a. What are the maximum values of waveforms $v_s(t)$ and $i_s(t)$? Enter your answers as Y_1 and Y_2 , with $Y_1 = \frac{v_{smax}}{\sqrt{2}}$ and $Y_2 = i_{smax}$.
- b. We now double ω of both sources but keep everything else the same (such as the capacitor, inductor and resistor values; the amplitude and phase of the sources, etc.). Find the new value of all complex numbers in the circuit (the new value of a_1 is called a_2 , etc.) as well as the new magnitude of the current source $|\mathbf{I_s}| = X_2$.



Given Variables:

- a1 : 30
- b1 : -10
- c1 : 5
- d1 : 6
- e1 : 6
- X1 : 5 A

Calculate the following:

Y1 (V) :

5.999999999999999



Y2 (A) :

5



a2 :

30



b2 :

-5



c2 :

10



d2 :

6



e2 :

6



X2 (A) :

5

