EE 206 Test #3d - Name _____

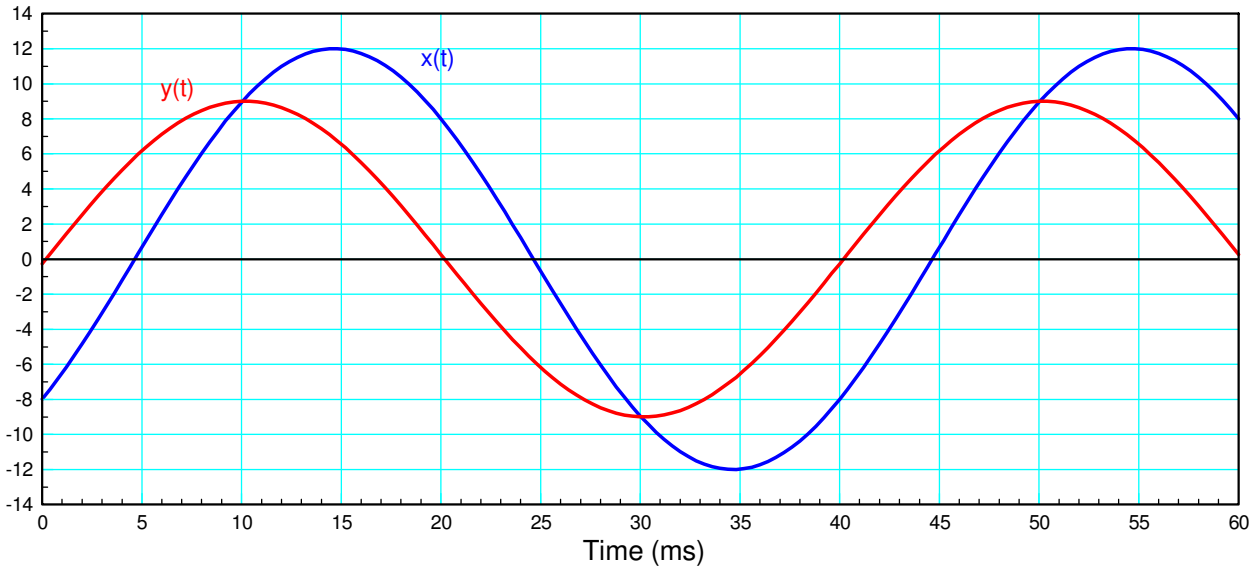
AC Analysis of Circuits. Due Thursday, May 7th at midnight

Open book, open notes, internet, calculators, matlab permitted. Individual effort only.

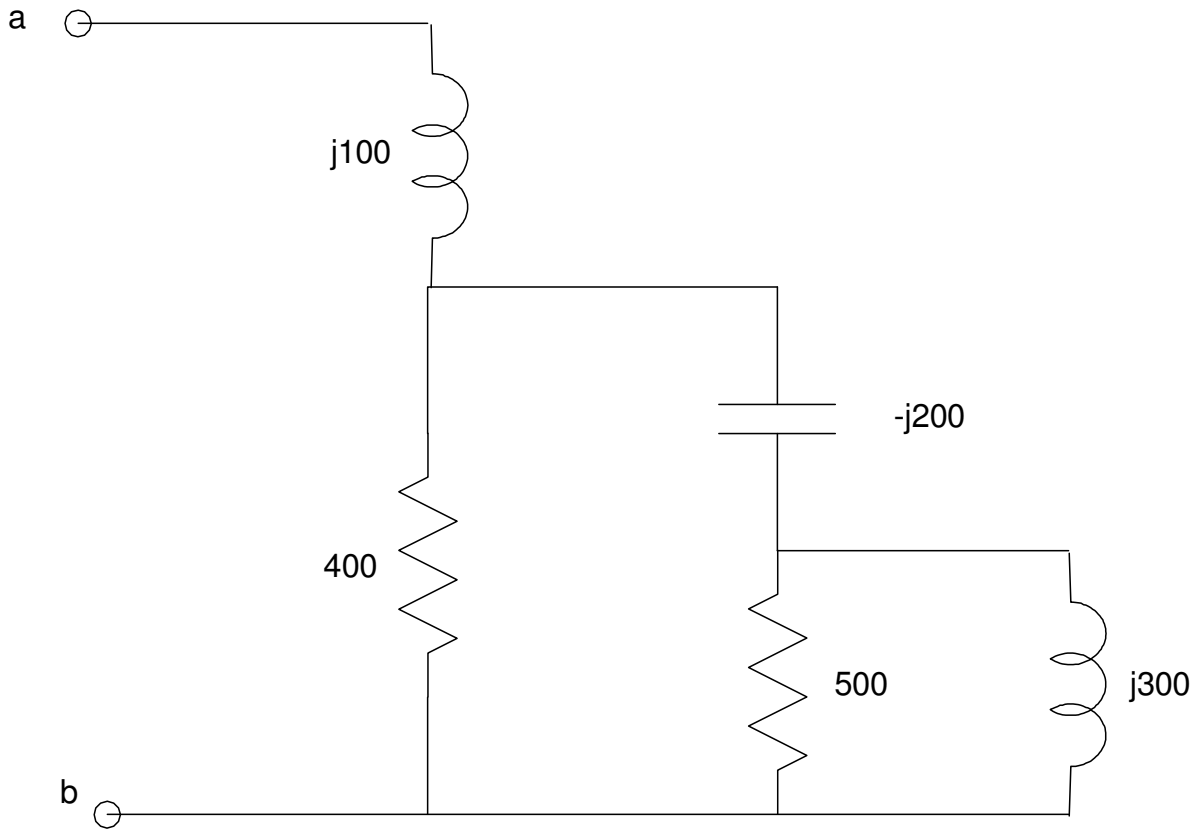
No aid given, received, or observed: (signature) _____

1) Determine the frequency and the phasor represetation for X and Y.

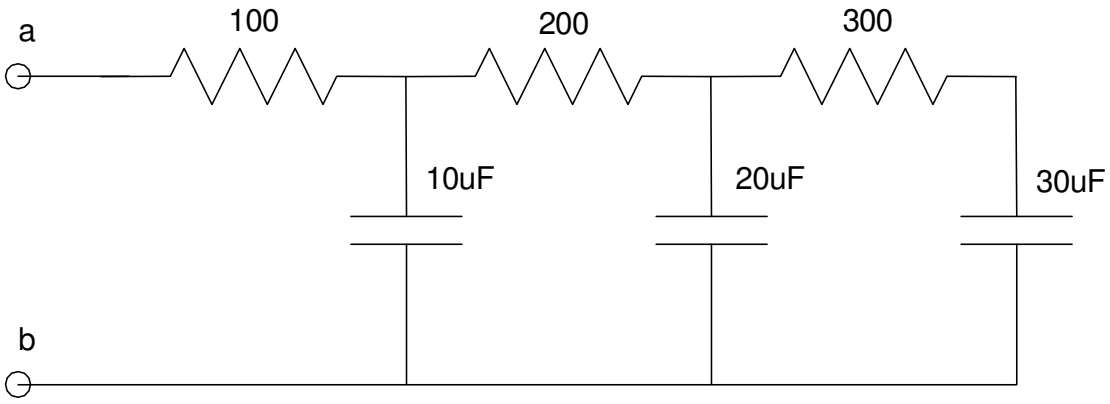
Frequency (Hz)	X		Y	
	Amplitude	Phase	Amplitude	Phase



2) Determine the resistace Rab (it will be a complex number)



3) Determine the impedance from a to b. Assume w = 100 rad/sec (15.9Hz)

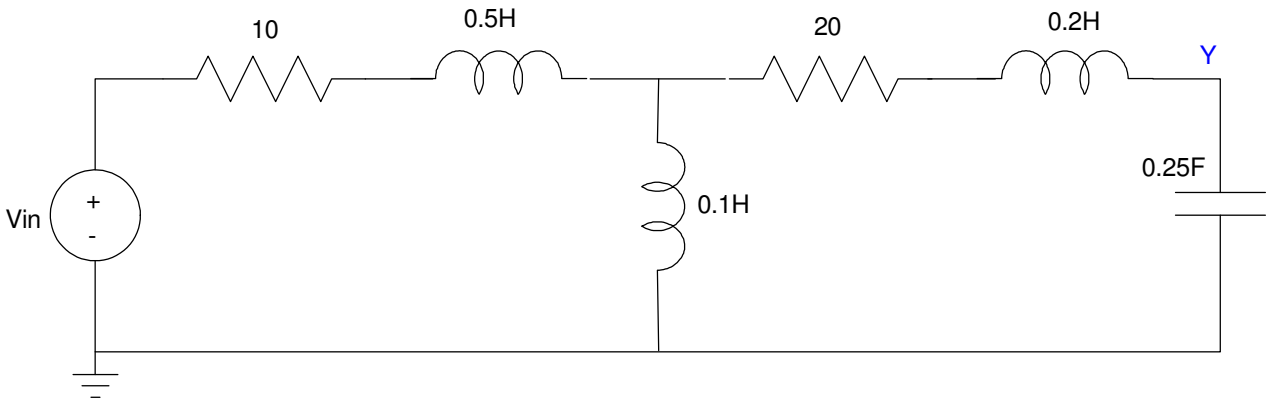


4) Assume

$$V_{in} = 3\cos(5t) + 5\sin(5t)$$

Determine the voltage Y(t)

y(t) =

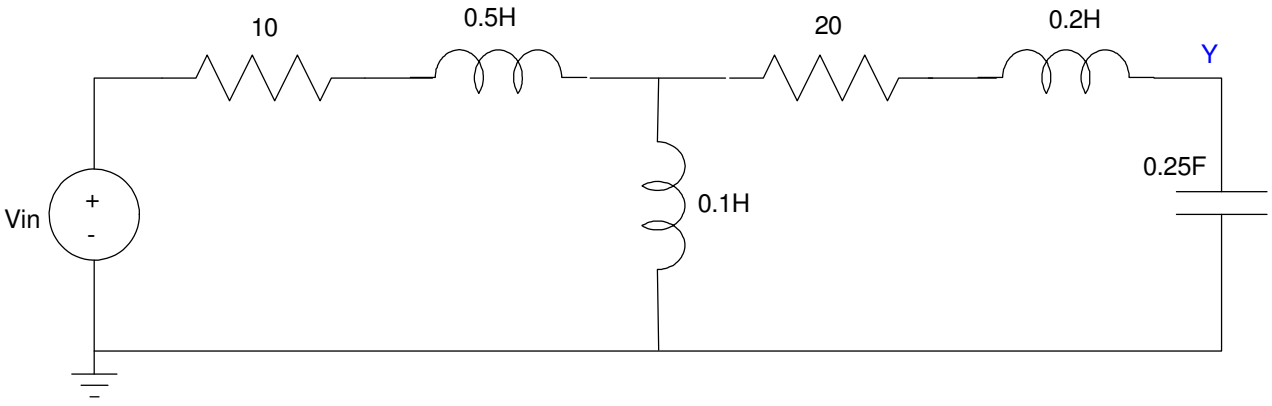


5) Assume

$$V_{in} = 3\cos(5t) + 7\sin(10t)$$

Determine the voltage y(t)

y(t) =



6) Determine the first 5 terms of the Fourier series approximation to x(t)

$$T = 2\pi$$

$$x(t) = \begin{cases} 0 & 0 < t < 2 \\ 5\sin(t/2) & 2 < t < 2\pi \end{cases}$$

$$x(t) \approx a_0 + a_1\cos(t) + b_1\sin(t) + a_2\cos(2t) + b_2\sin(2t)$$

a0	a1	b1	a2	b2