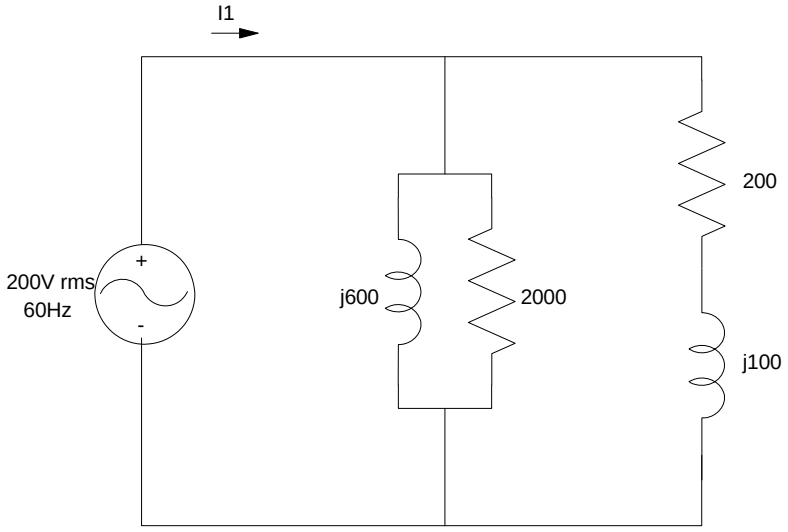
ECE 331: Test #1 Name _____

Closed Book, Closed Notes. Calculators Permitted

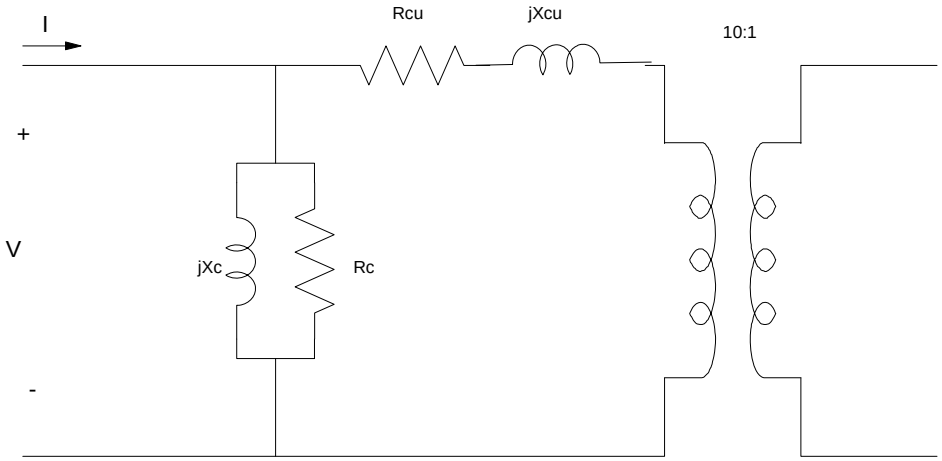
1) For the following circuit, find the current, I1, the power factor, and the total power delivered (real and complex).

I1 (amps - rms)	
power factor	
power delivered (Watts)	



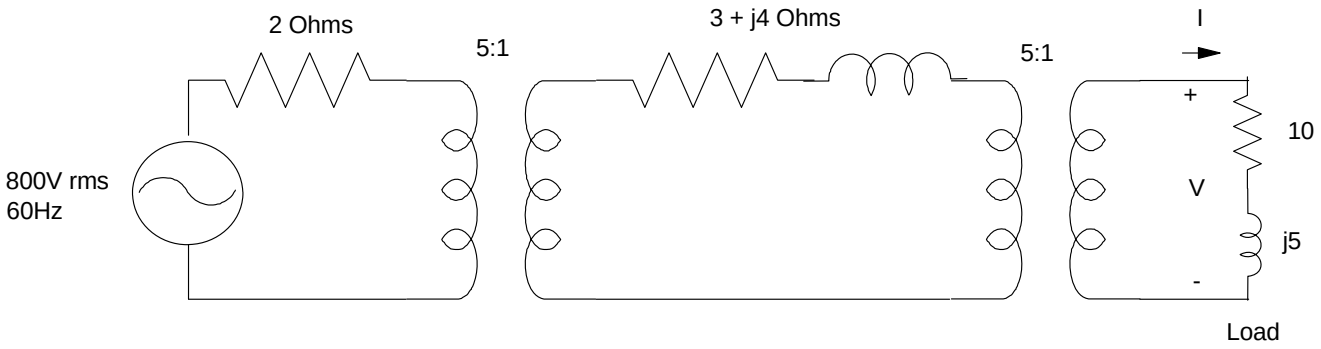
2) Find the core and copper impedances for a transformer with the following data:

- Open Circuit Test: V = 3800V, I = 23A, pf = 0.2
- Short Circuit Test: V = 38V, I = 3A pf = 0.8

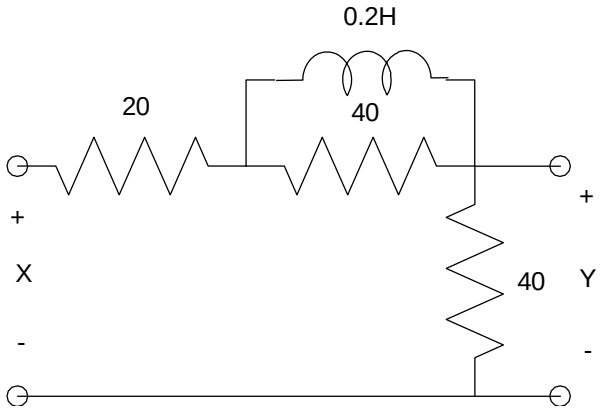


3) For the following transmission line, find the current at the load, the voltage at the load, and the effiency of the transmission line.

V load	
I load	
Power to the load	
efficiency	



4) Find the differential equation which relates voltages X and Y.



BONUS! According to the EERE, what is the approximate weight of a 138kV, 2000kVA transformer in pounds?