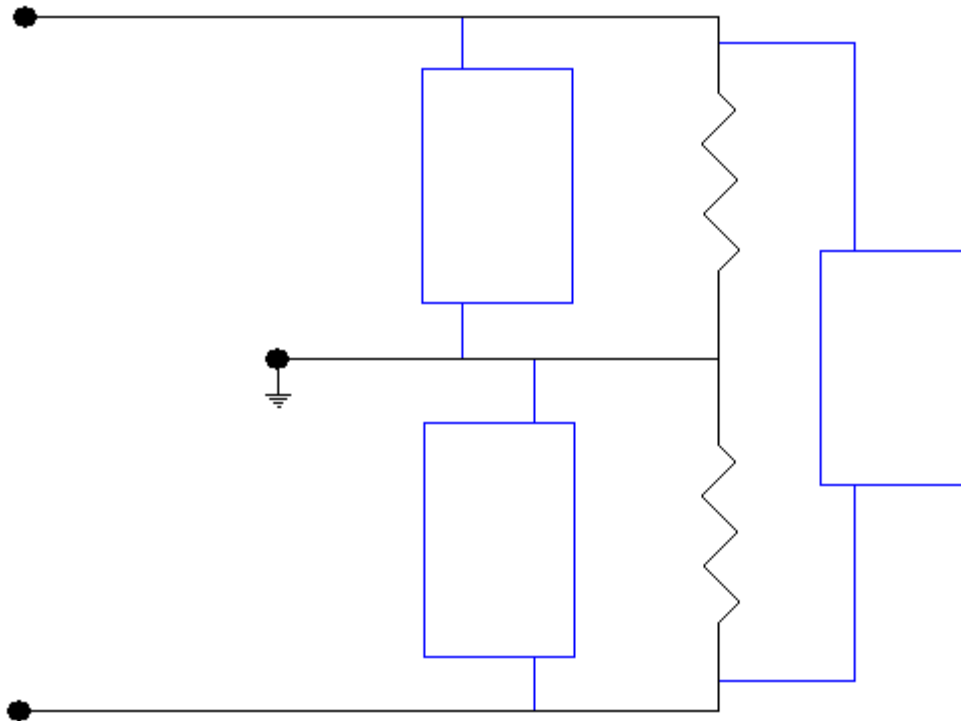
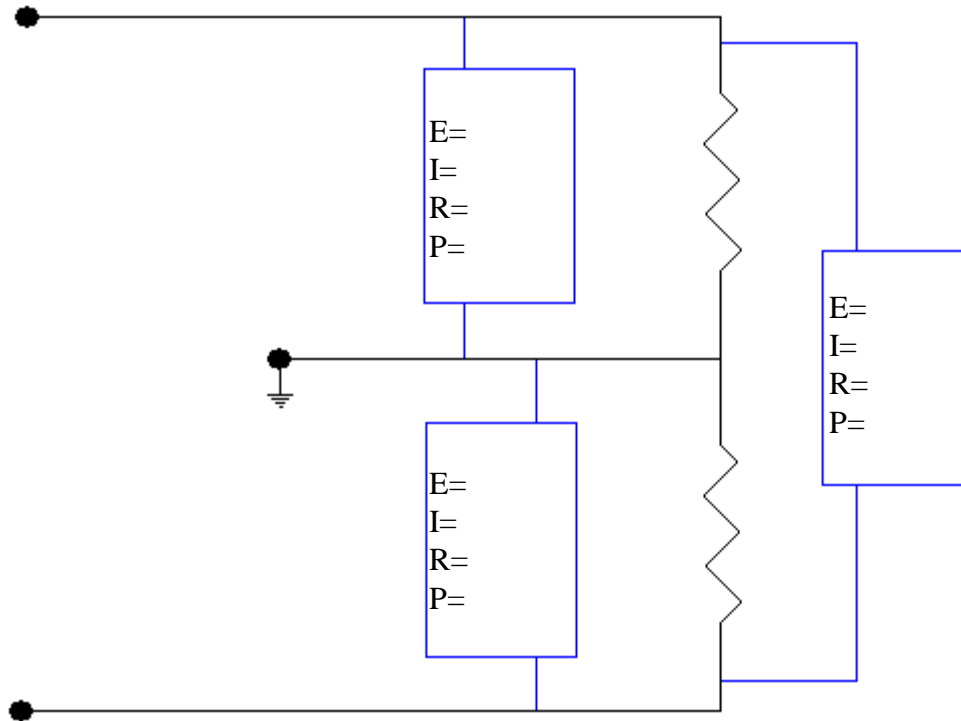


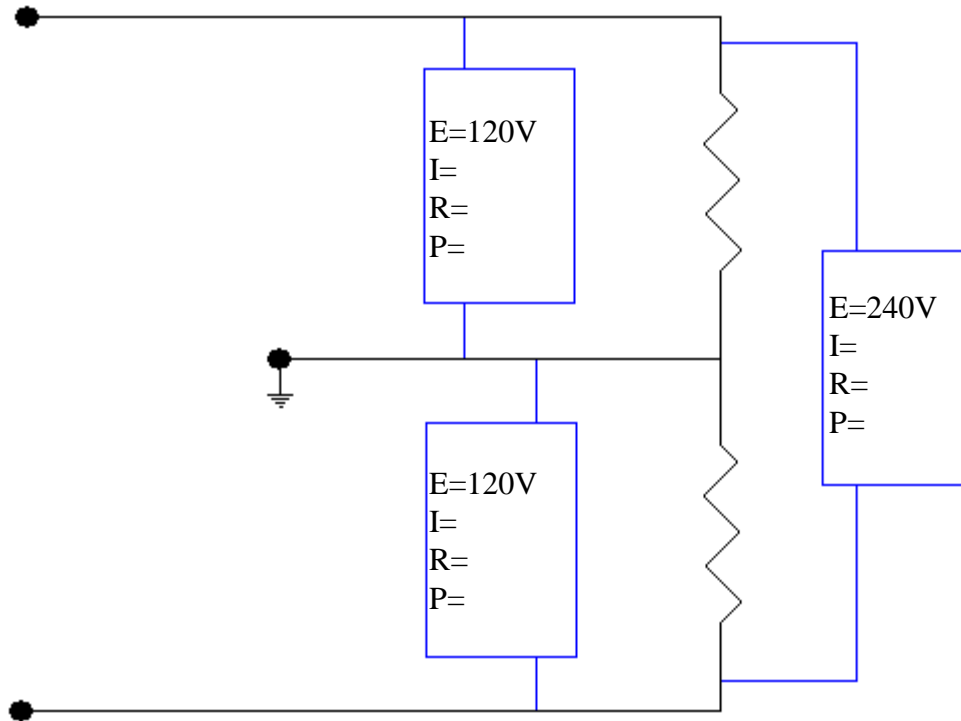
Start with a 120/240 multiwire branch circuit.



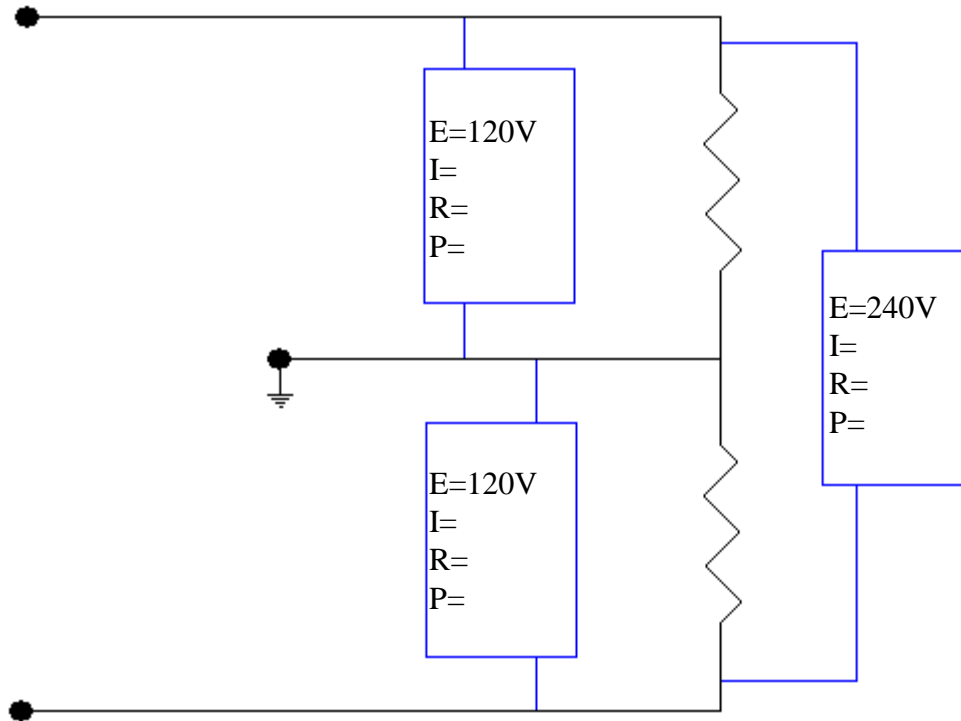
We'll need to begin with some given values.



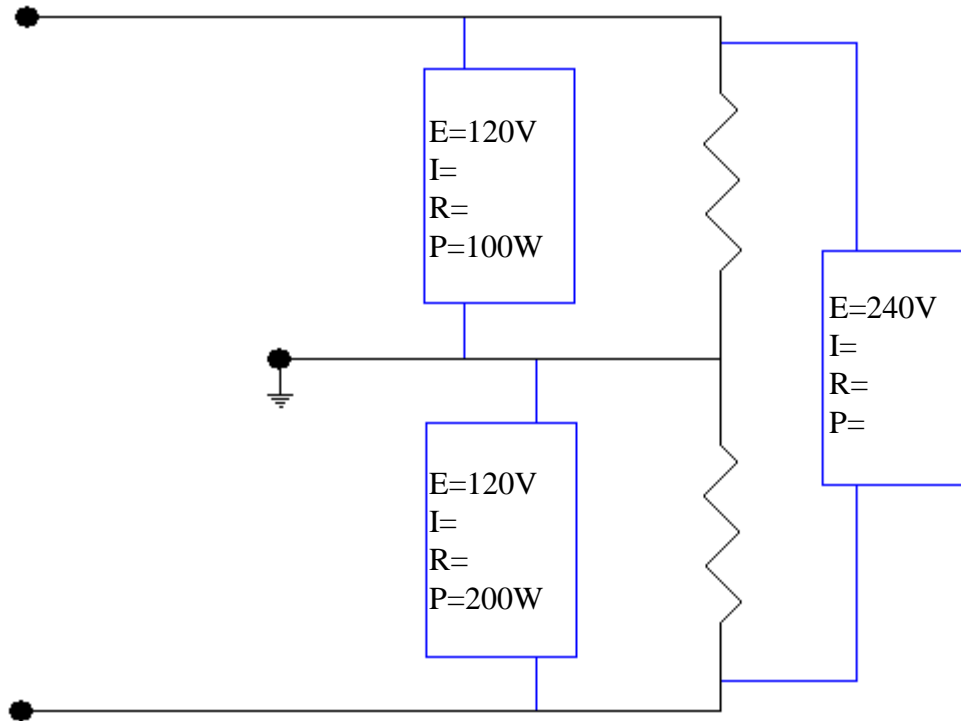
We'll need to begin with some given values.



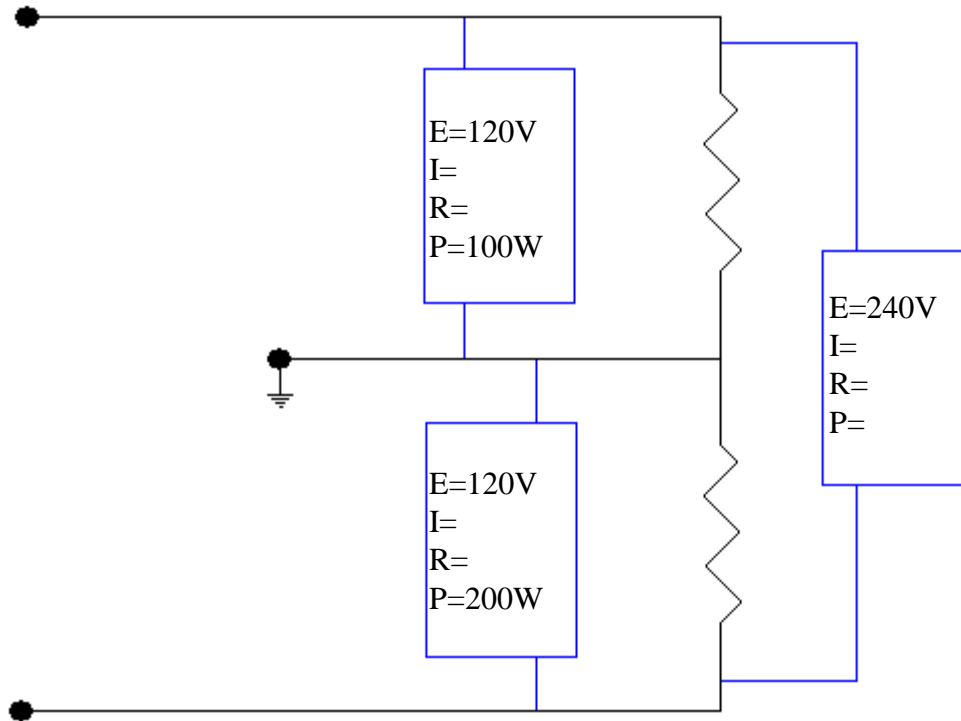
Now lets add a load to each circuit.



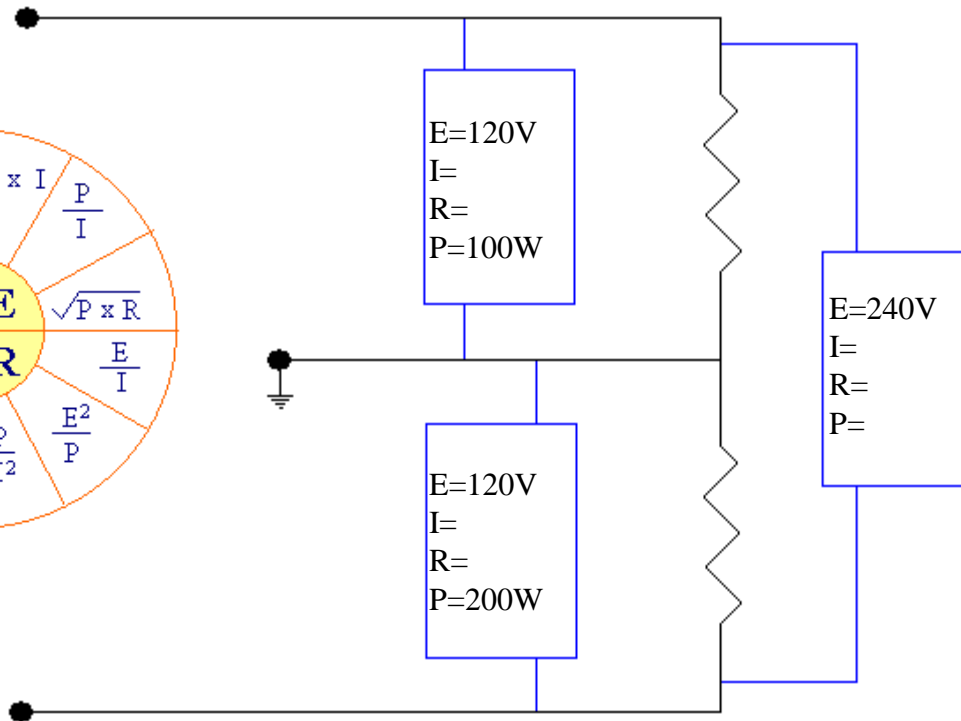
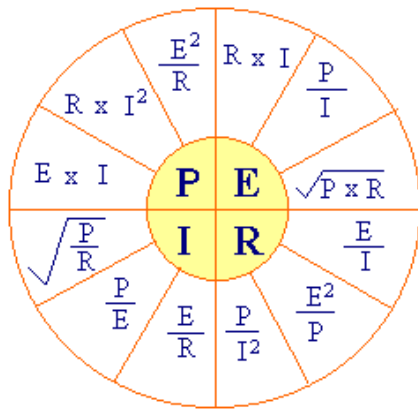
Now lets add a load to each circuit.



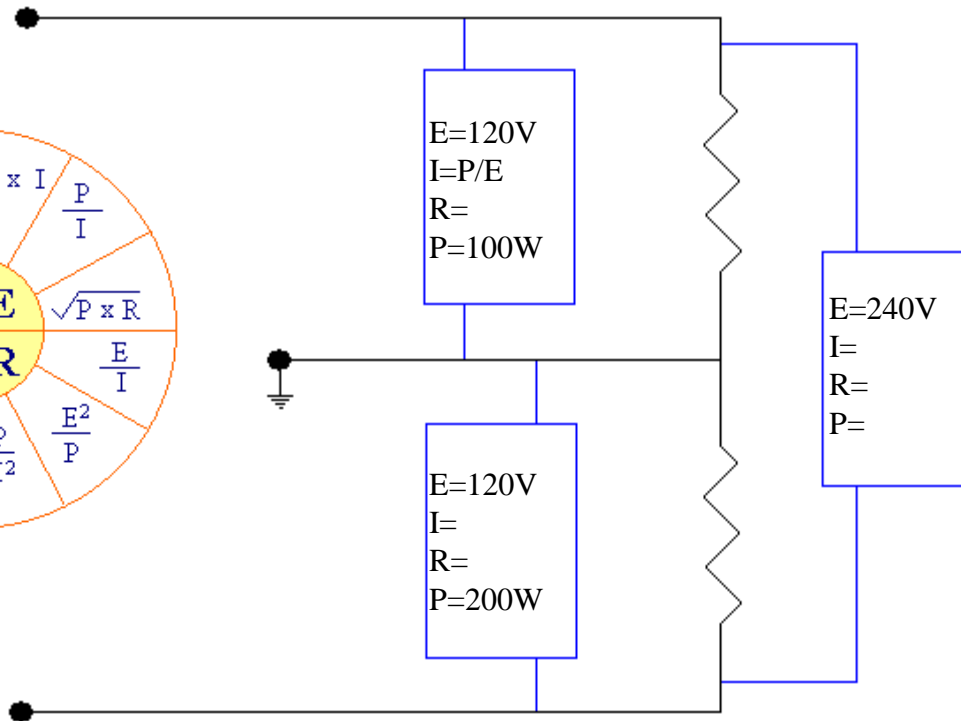
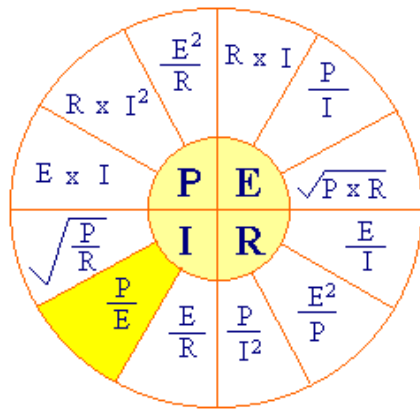
Then calculate amps and resistance for each load.



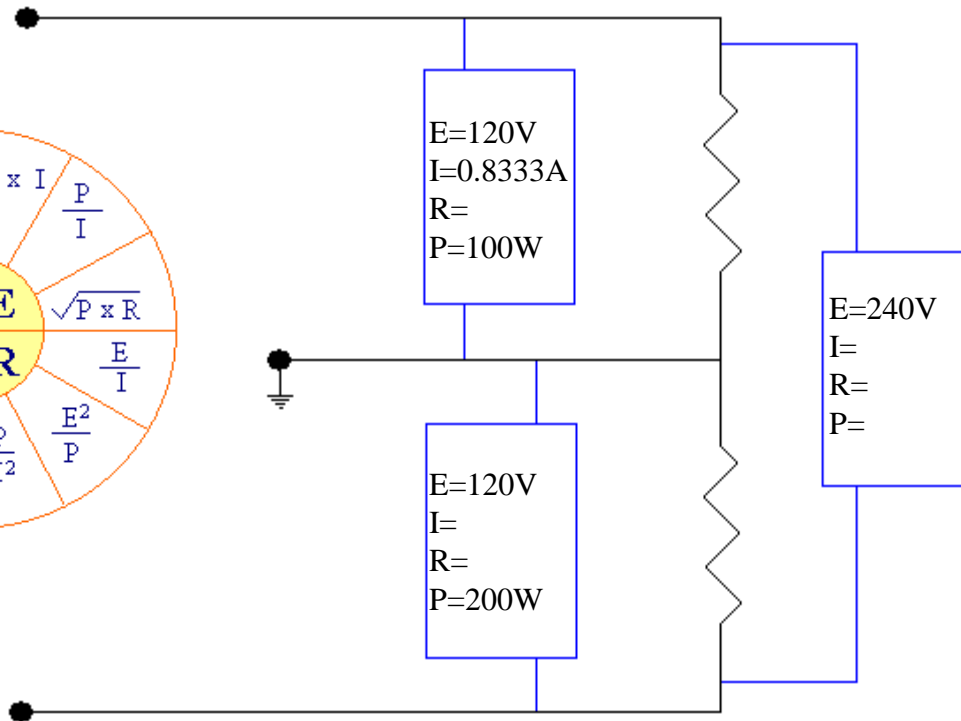
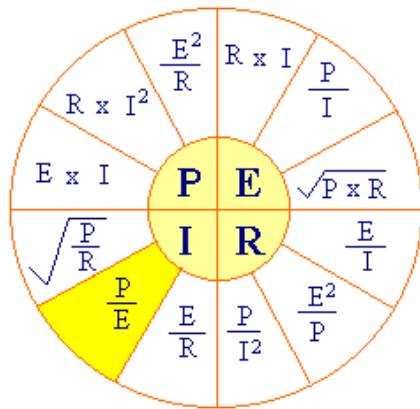
Then calculate amps and resistance for each load.



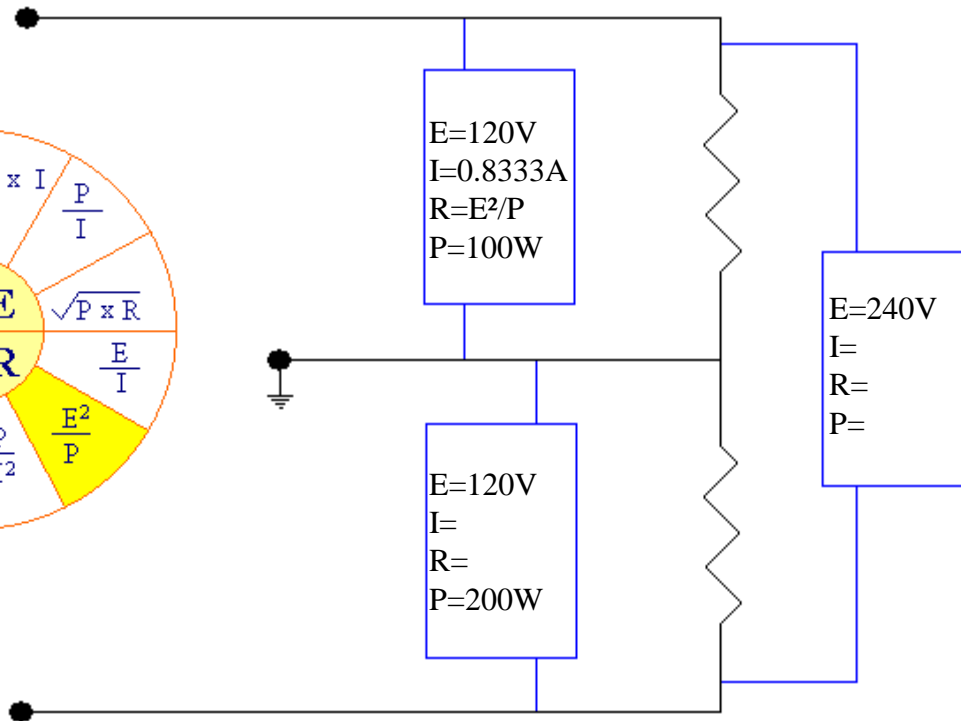
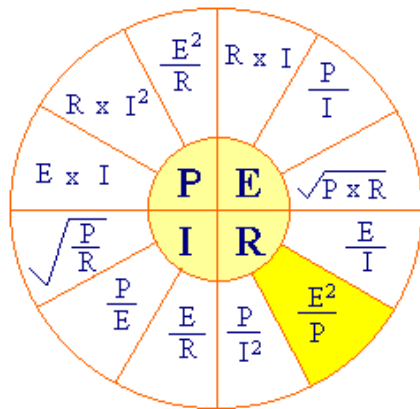
Then calculate amps and resistance for each load.



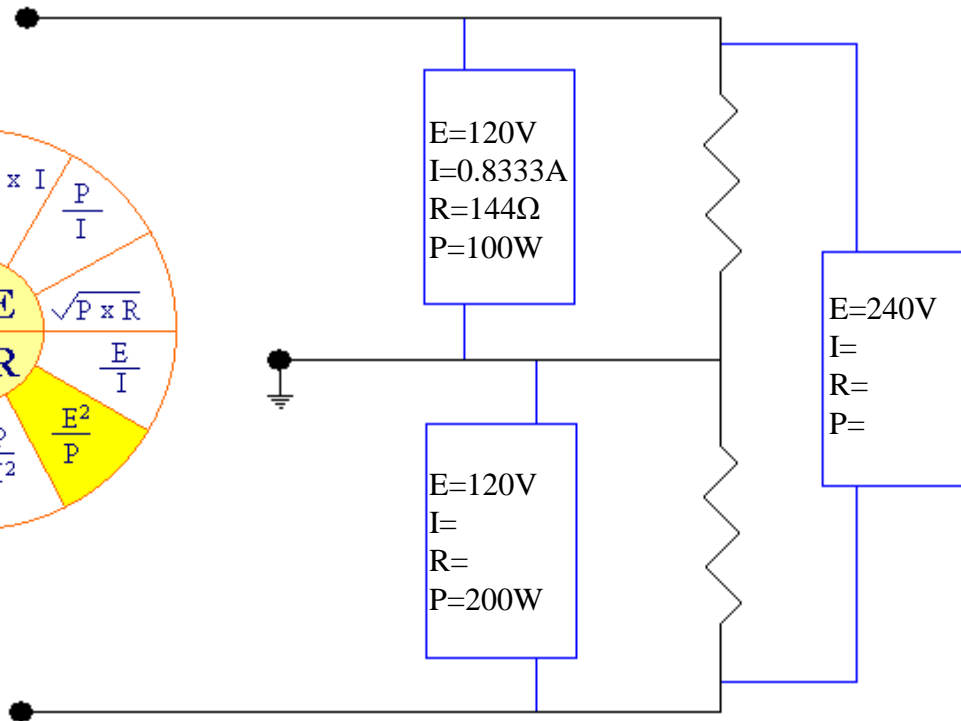
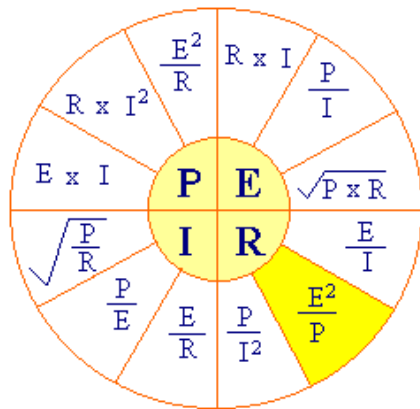
Then calculate amps and resistance for each load.



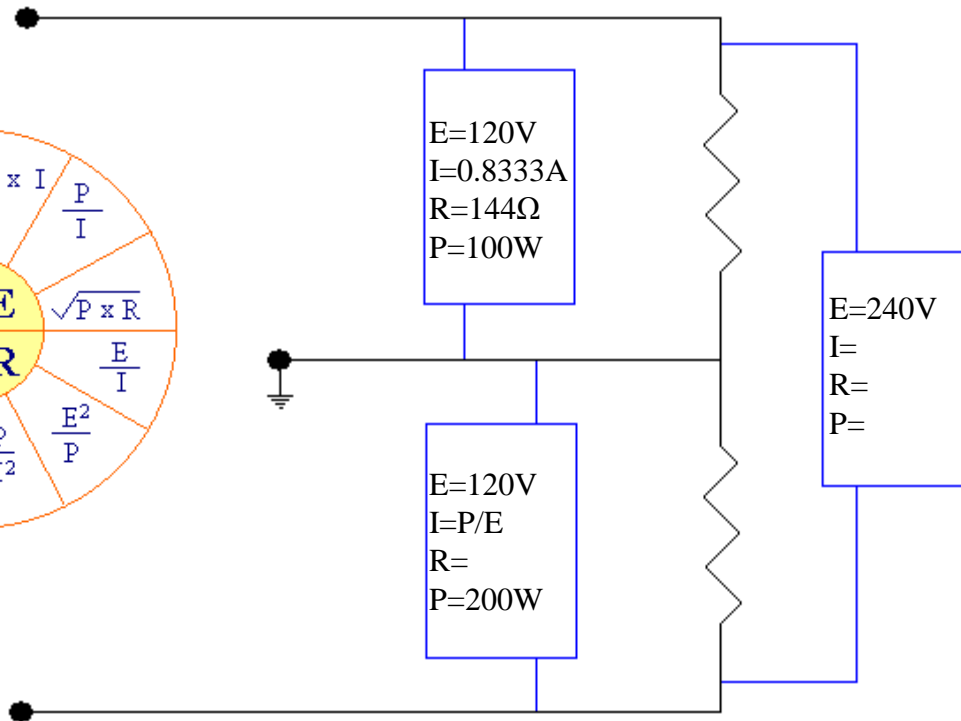
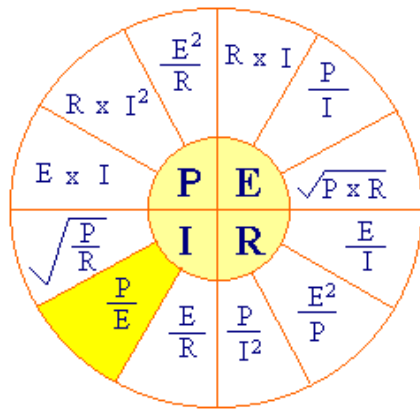
Then calculate amps and resistance for each load.



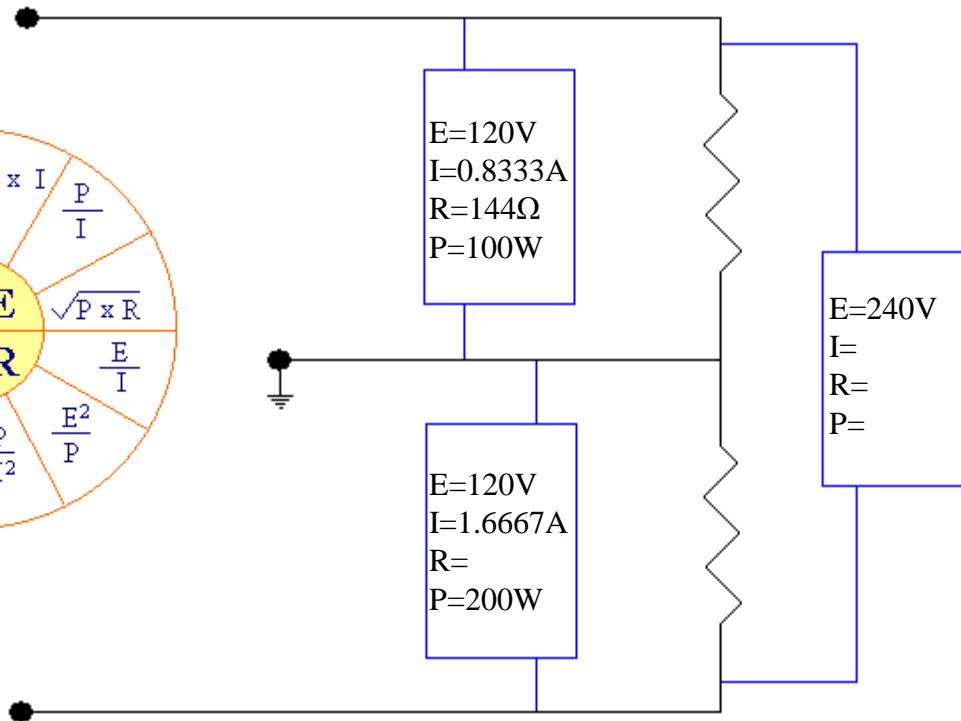
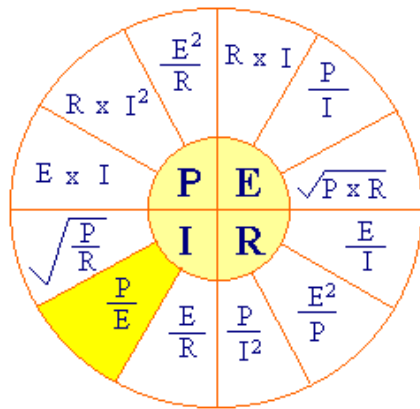
Then calculate amps and resistance for each load.



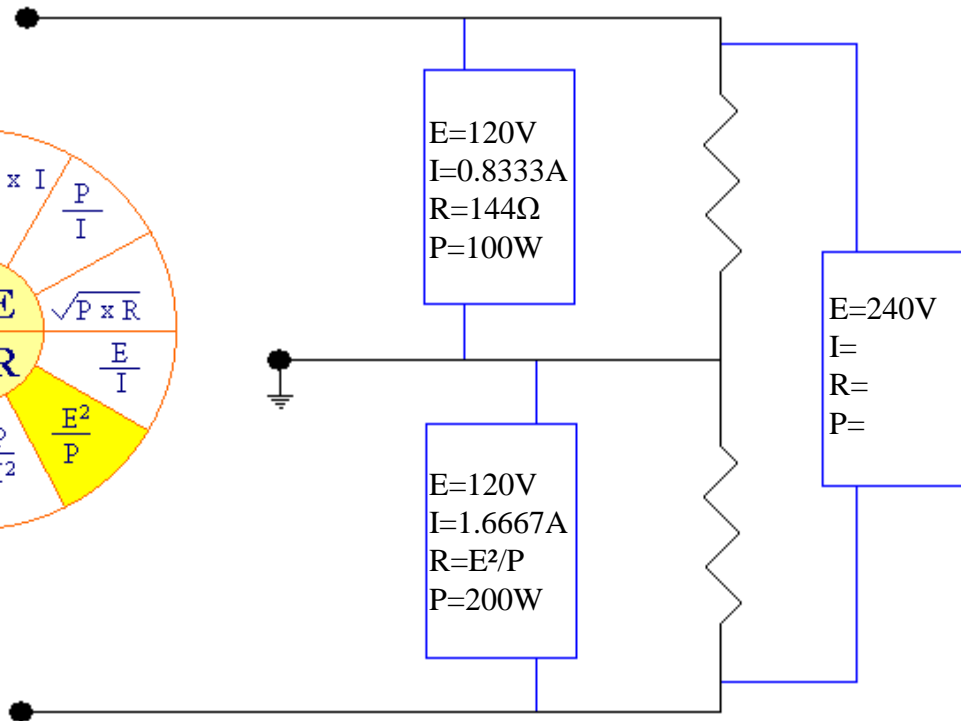
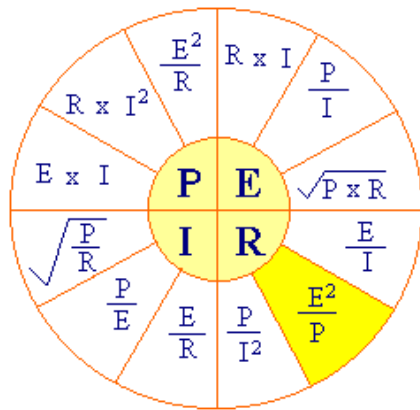
Then calculate amps and resistance for each load.



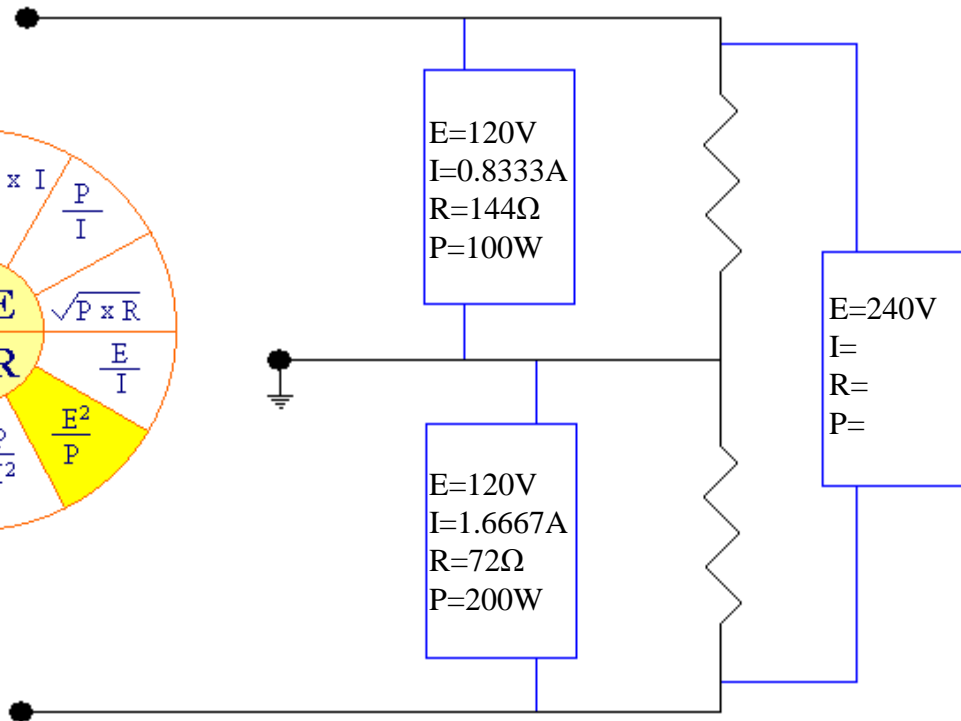
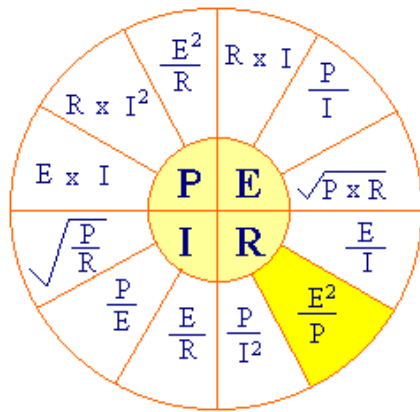
Then calculate amps and resistance for each load.



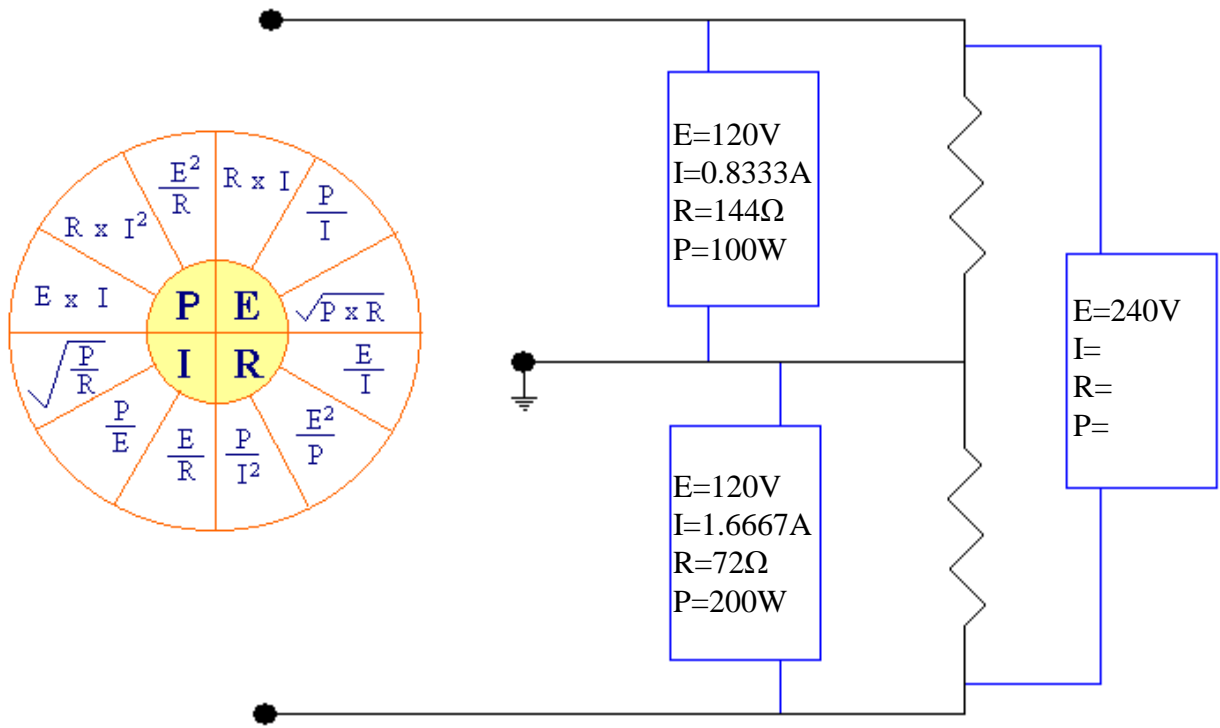
Then calculate amps and resistance for each load.



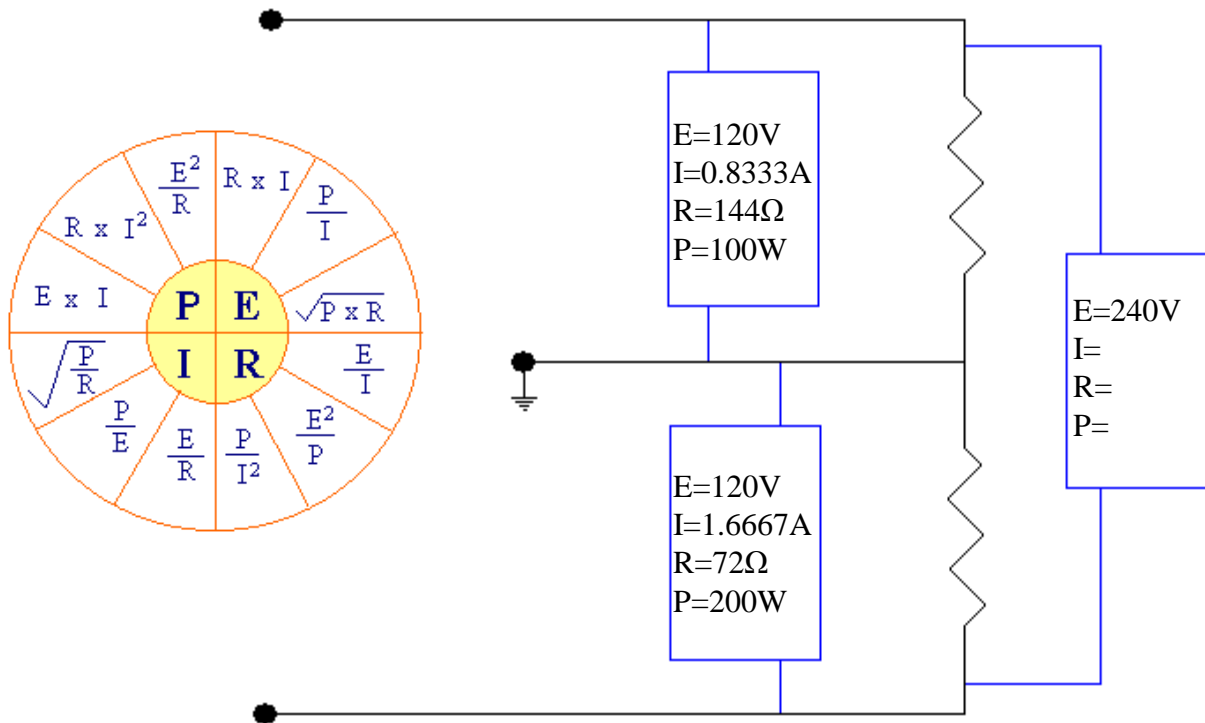
Then calculate amps and resistance for each load.



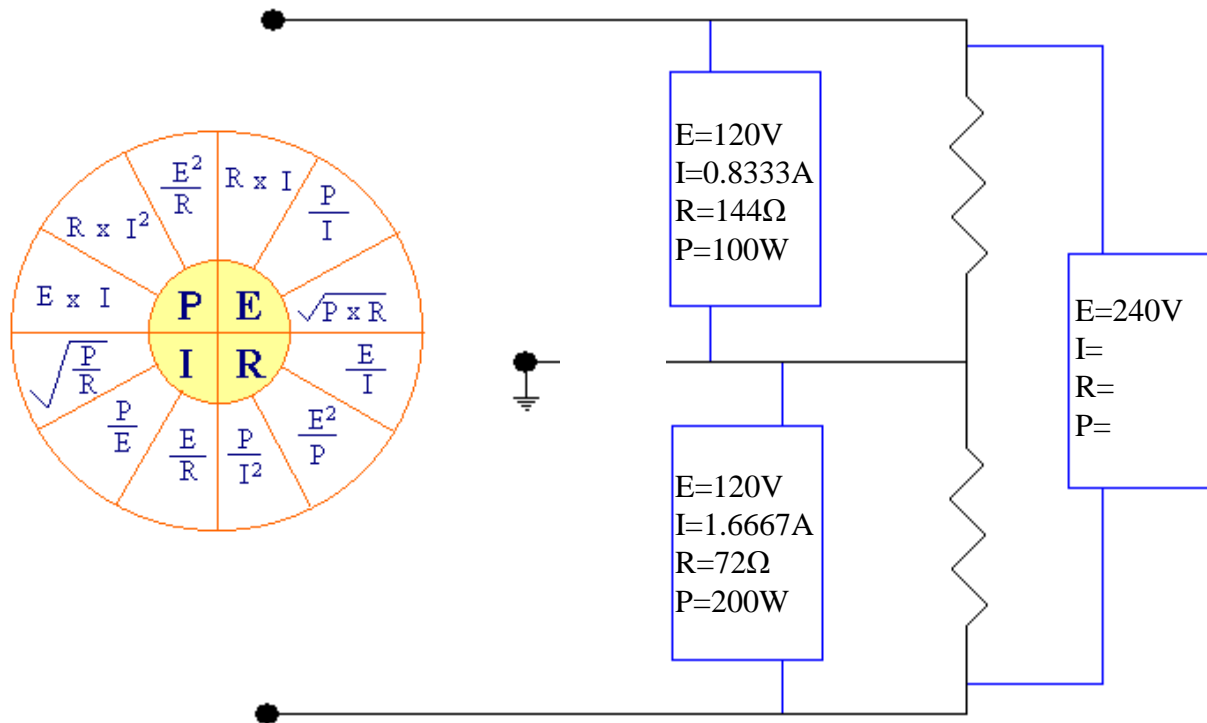
With these values known, we can begin to understand what happens when the neutral is opened.



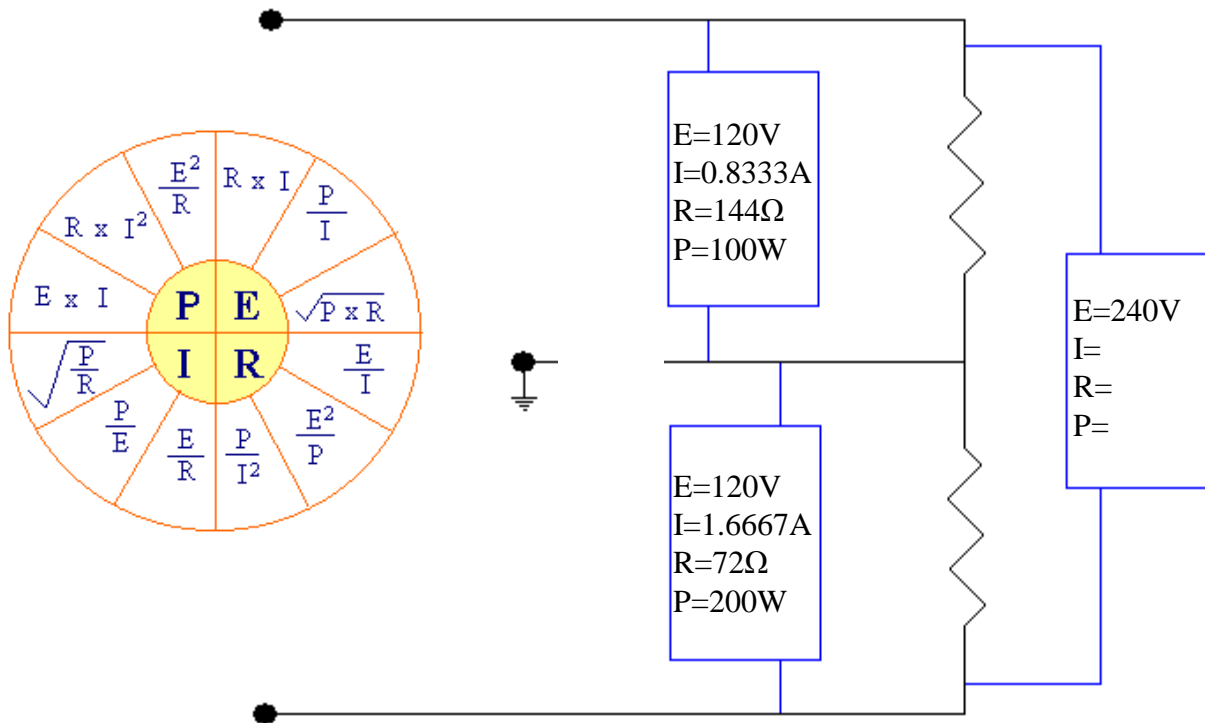
First, we'll open the neutral conductor.



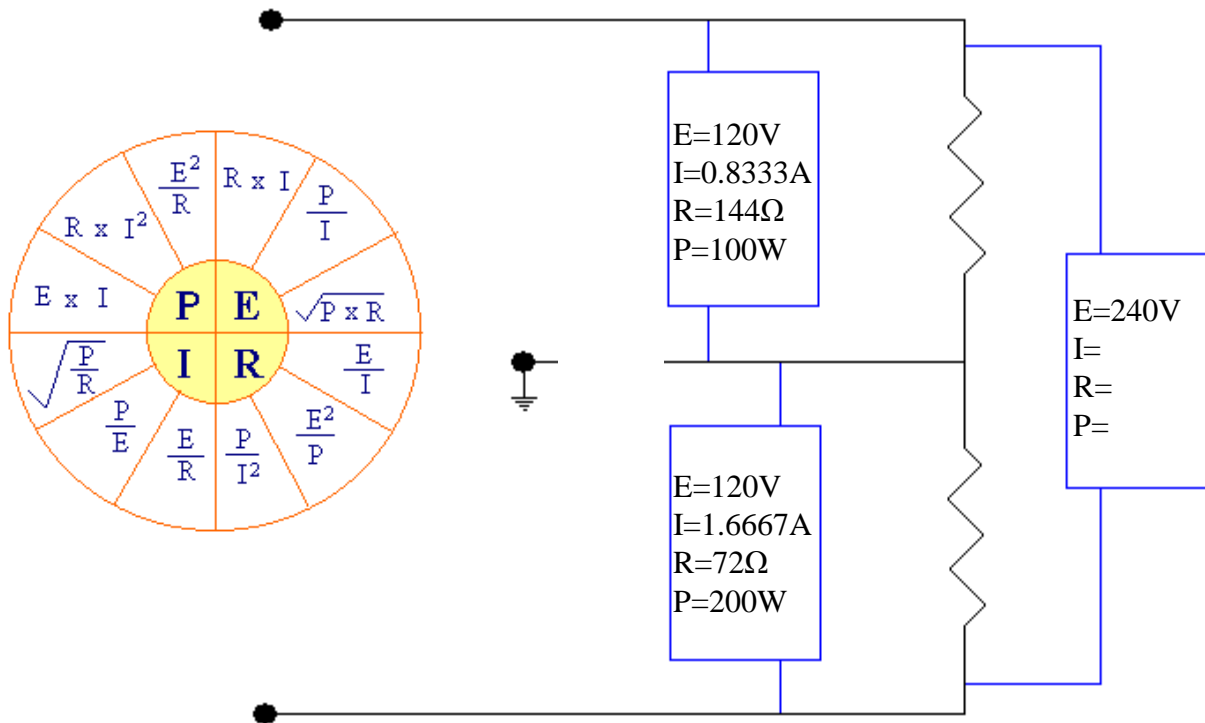
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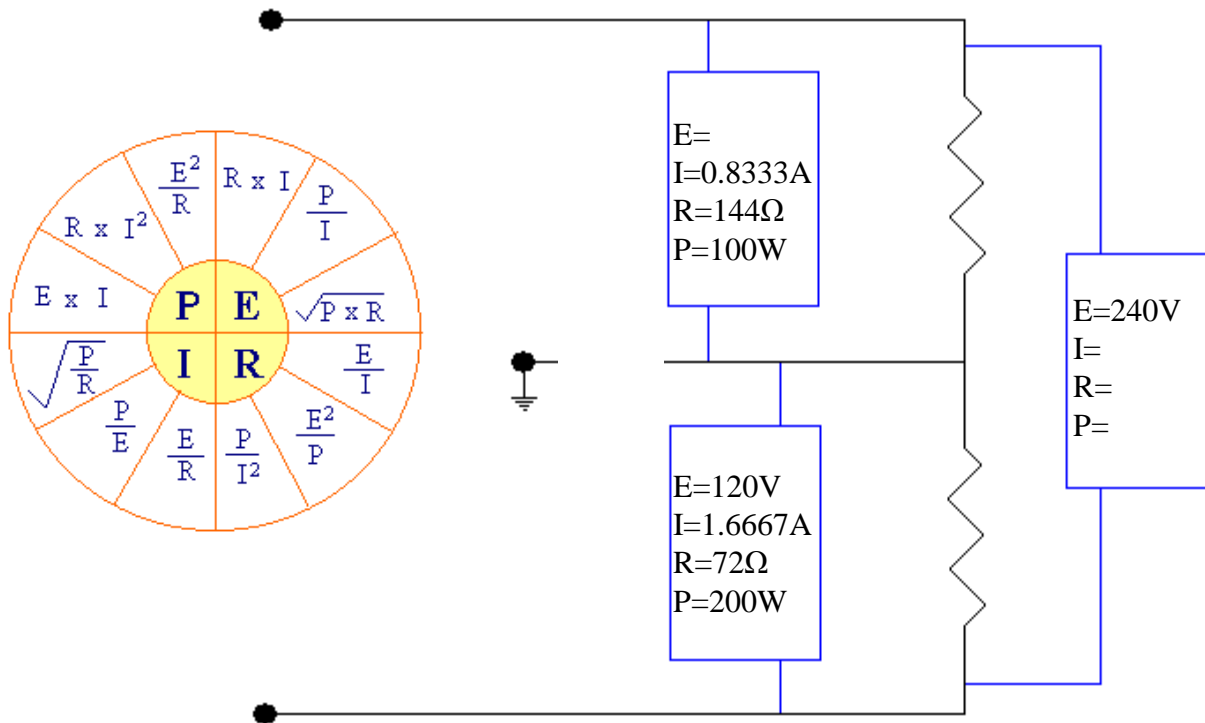
In doing so, we no longer have two circuits, but only one.
 The two loads are now in series.



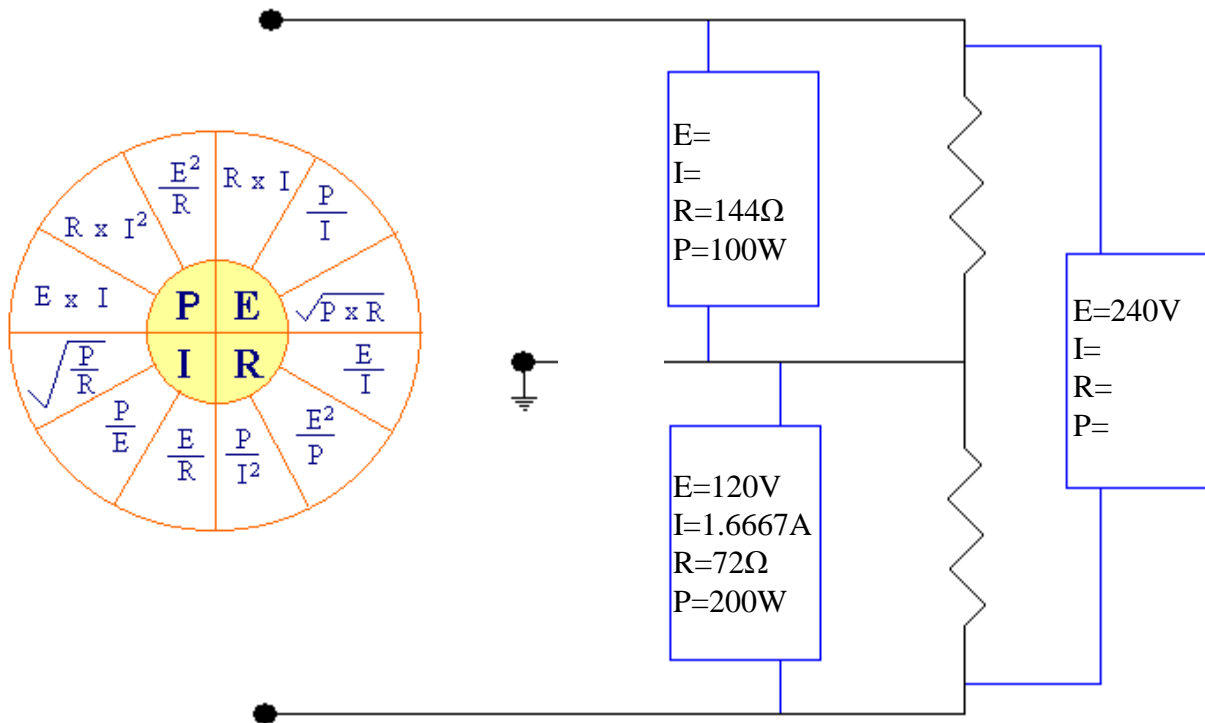
So we will erase the figures we have calculated so far.



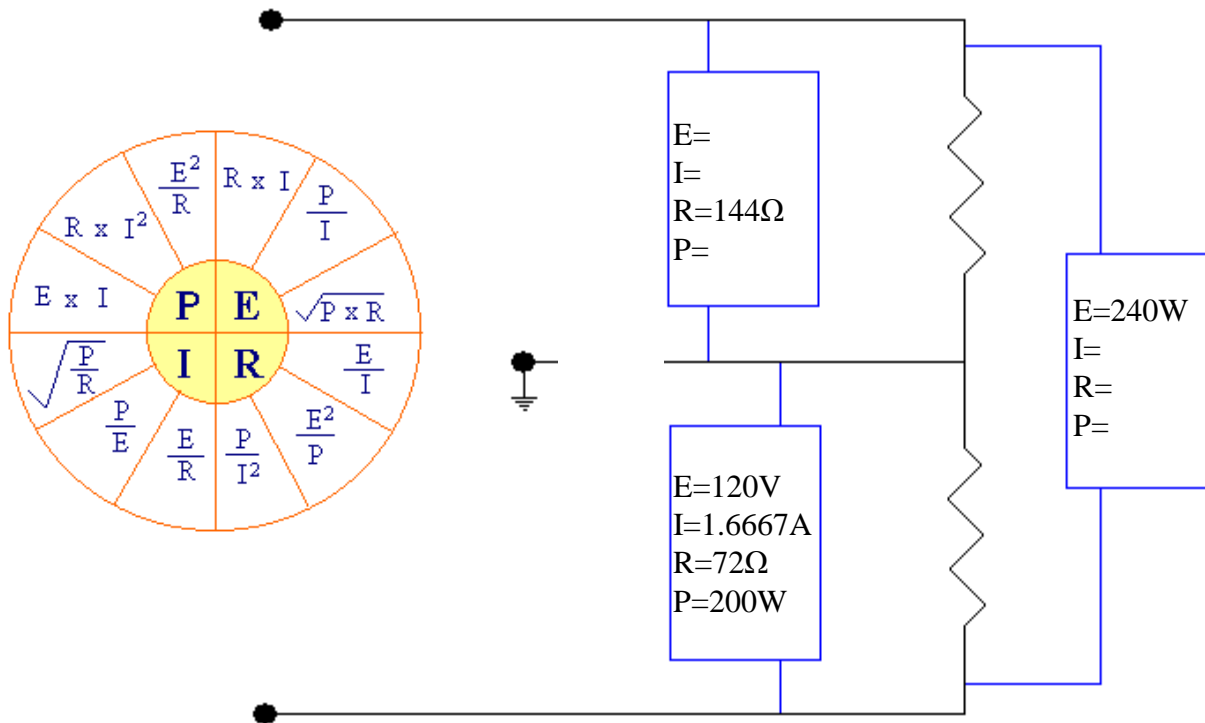
So we will erase the figures we have calculated so far.



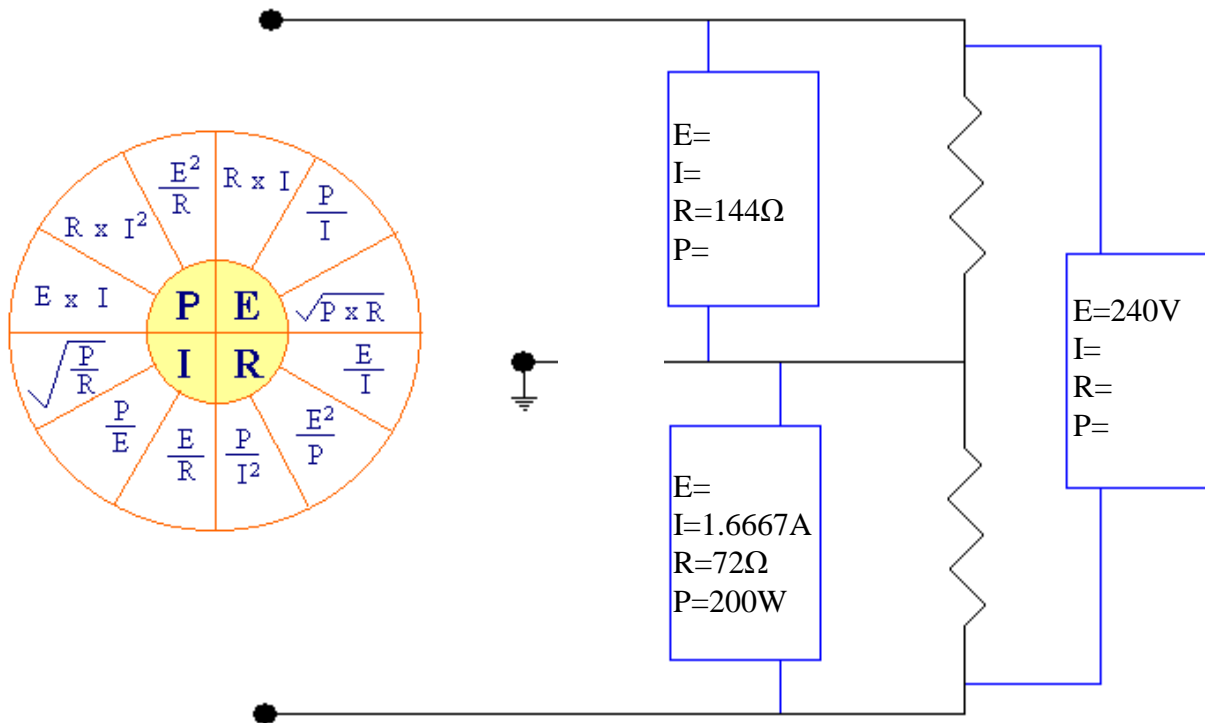
So we will erase the figures we have calculated so far.



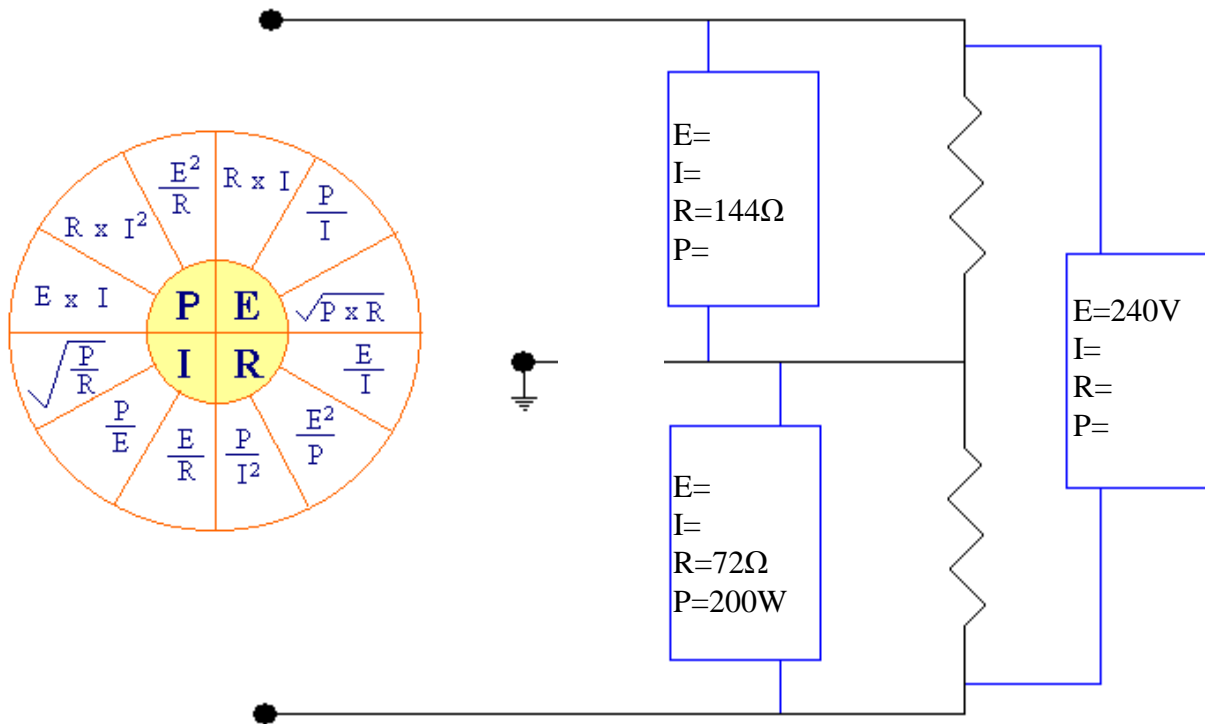
So we will erase the figures we have calculated so far.
 Leave the values of R in place. Those will not change.



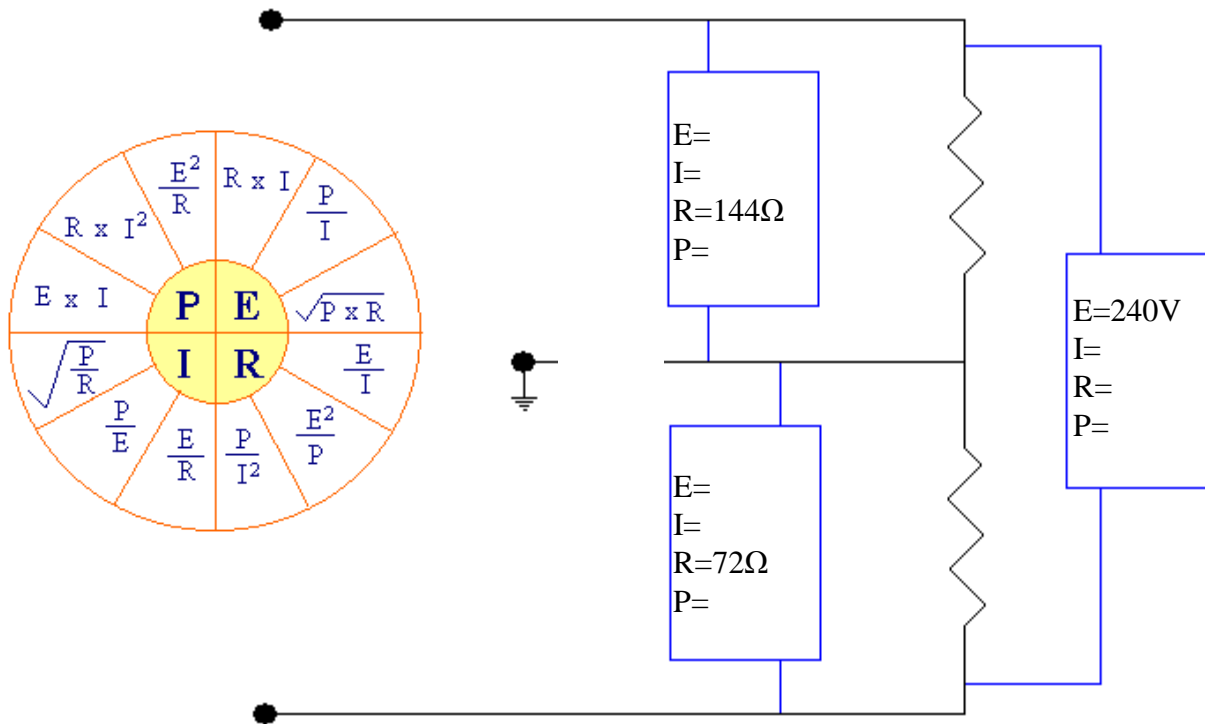
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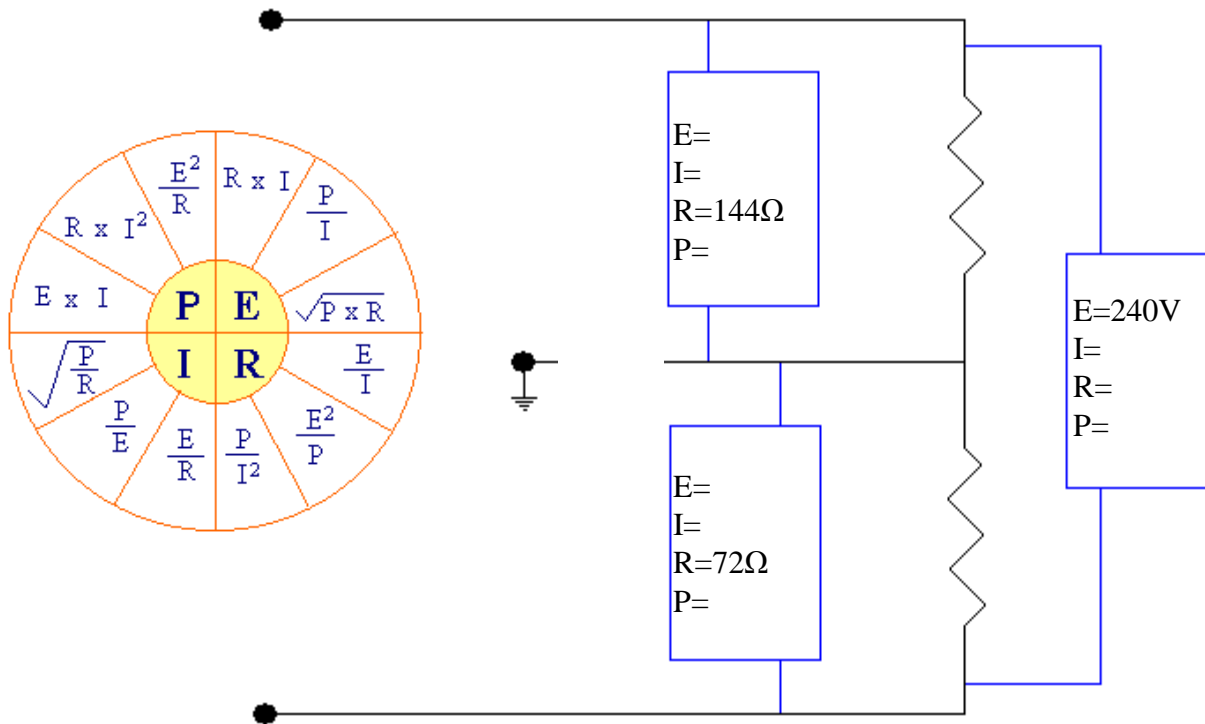
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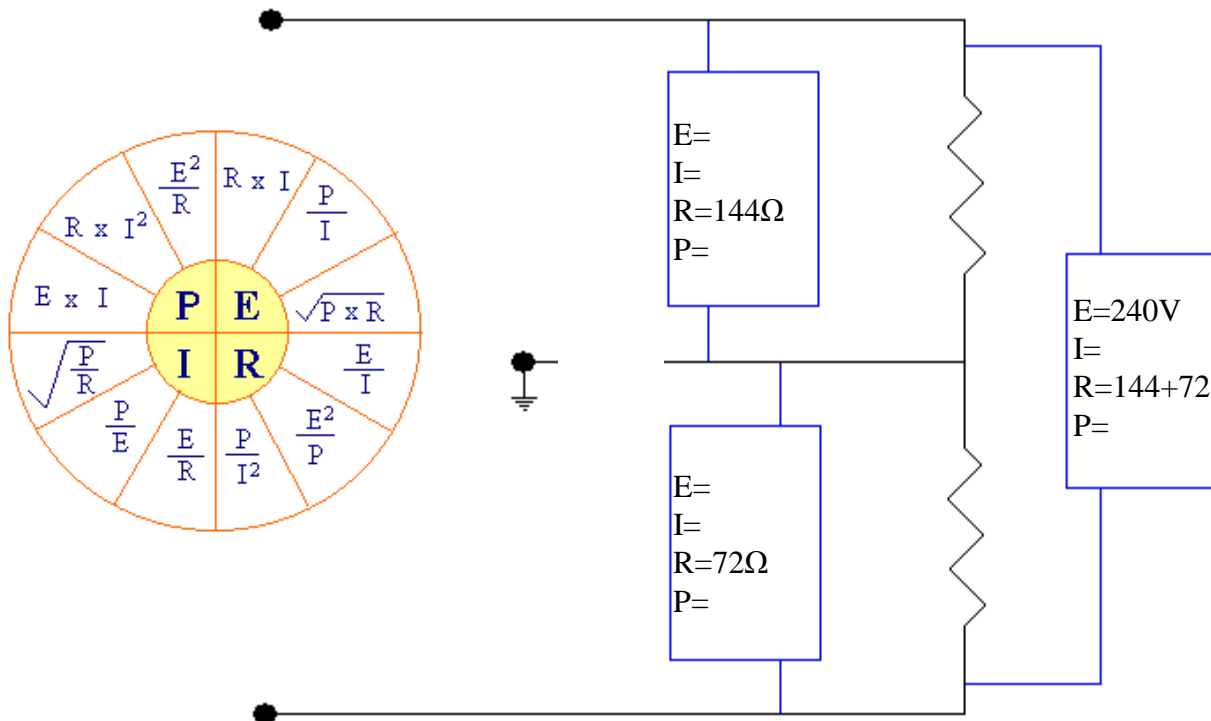
So we will erase the figures we have calculated so far.
 Leave the values of R in place. Those will not change.



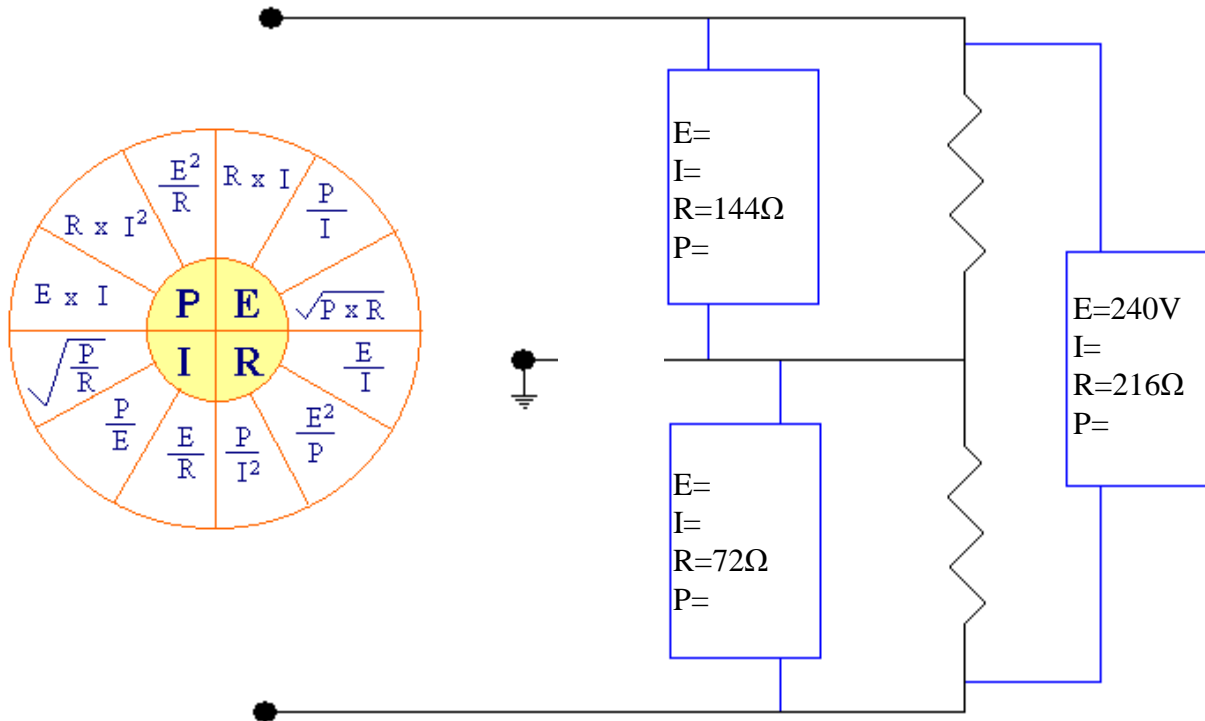
Now add the values of the two loads' resistances.



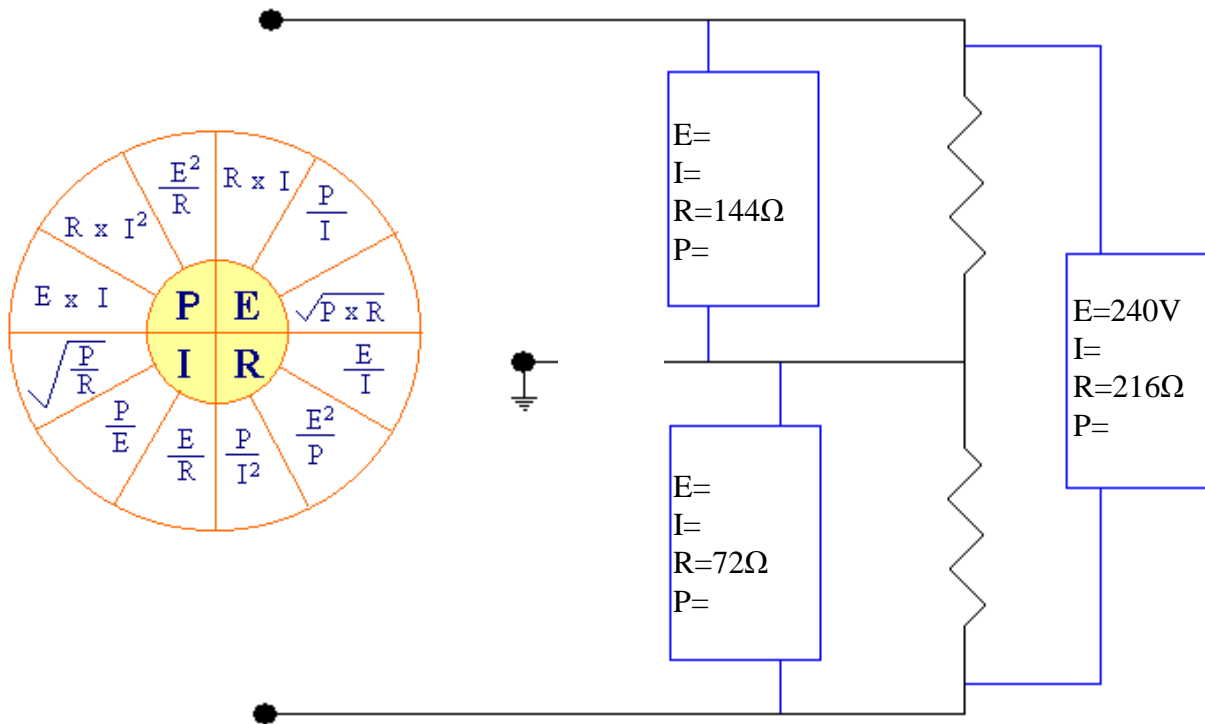
Now add the values of the two loads' resistances.



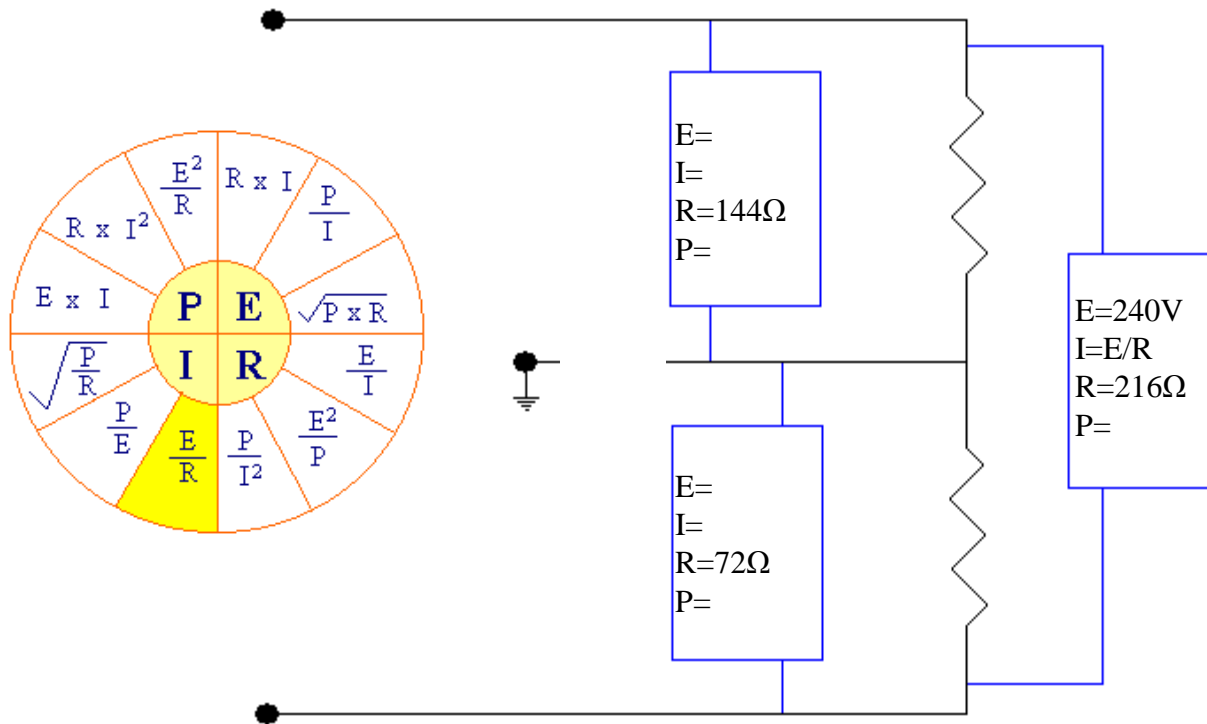
Now add the values of the two loads' resistances.



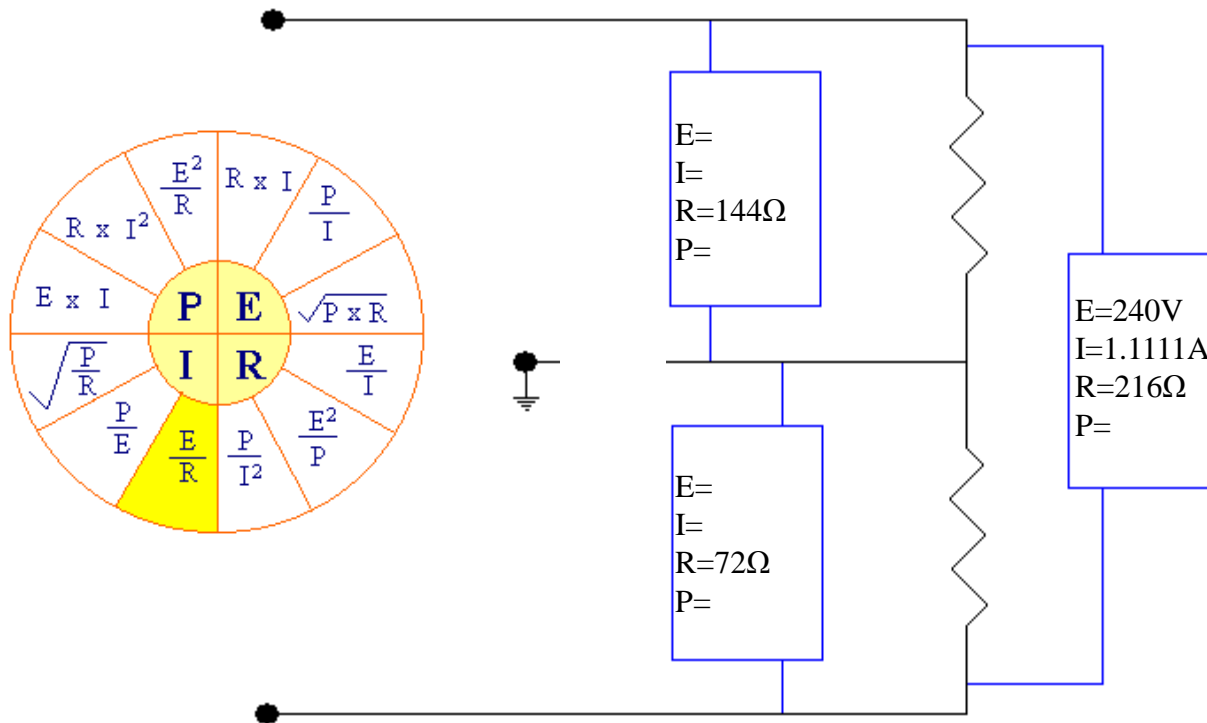
Now calculate I and P for the entire circuit.



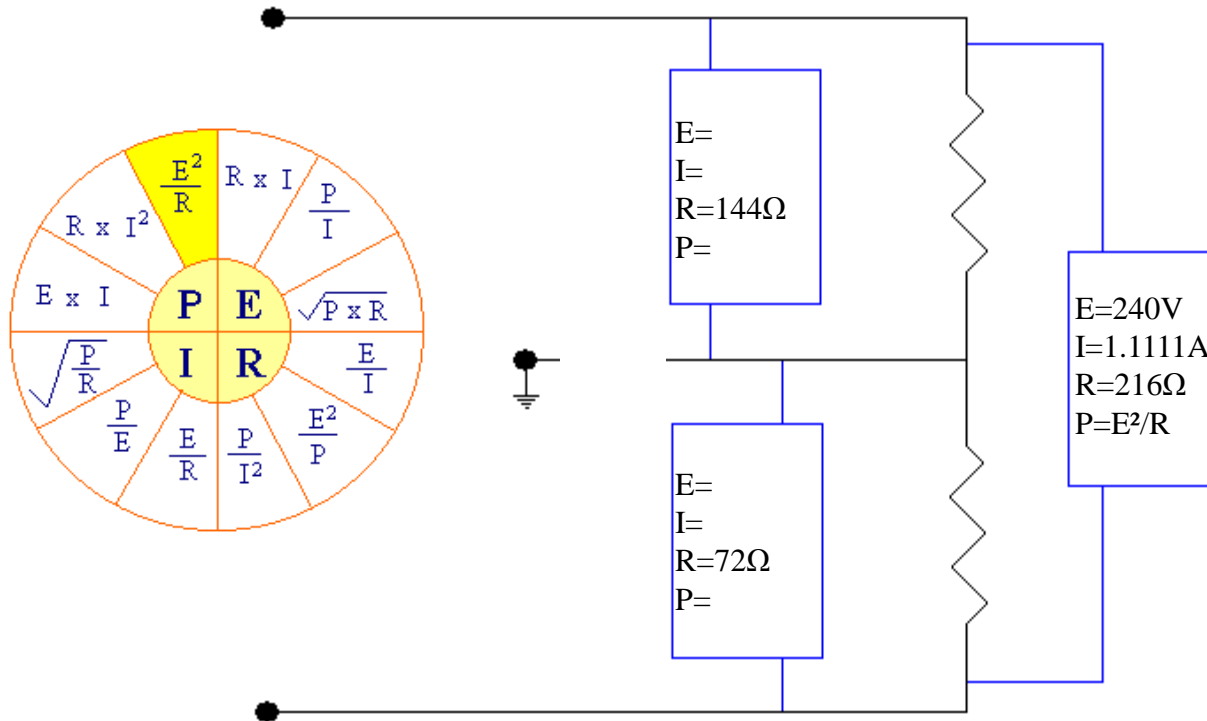
Now calculate I and P for the entire circuit.



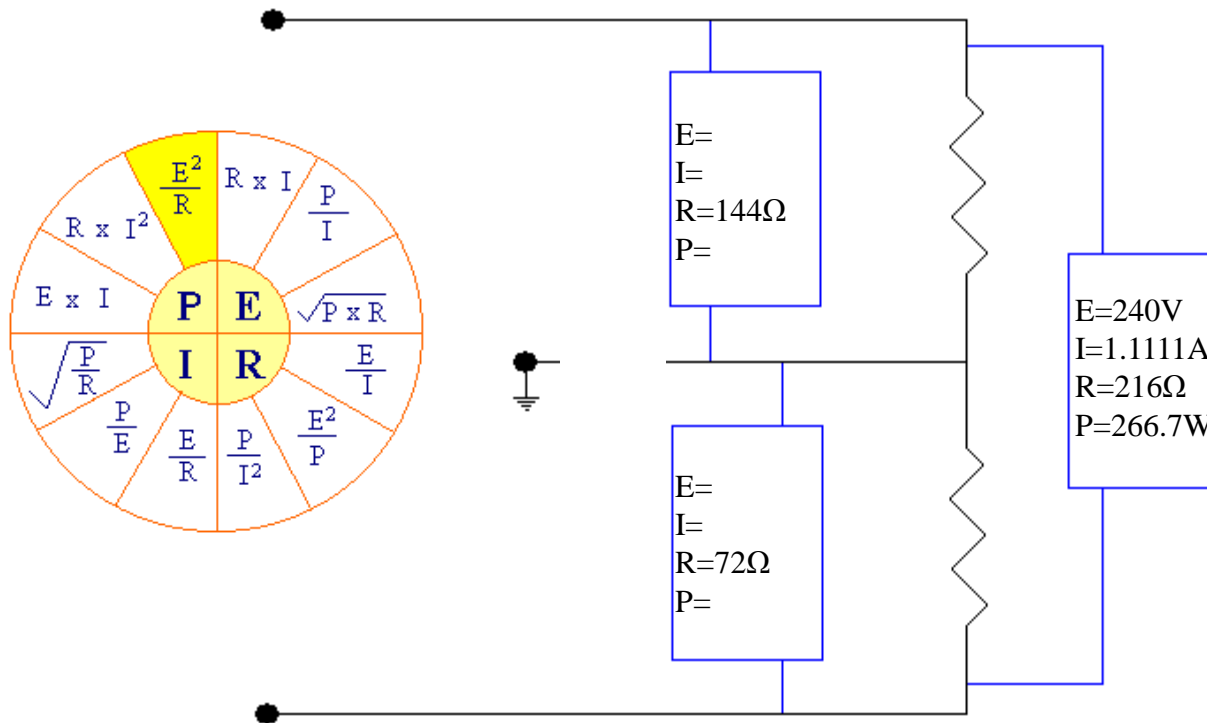
Now calculate I and P for the entire circuit.



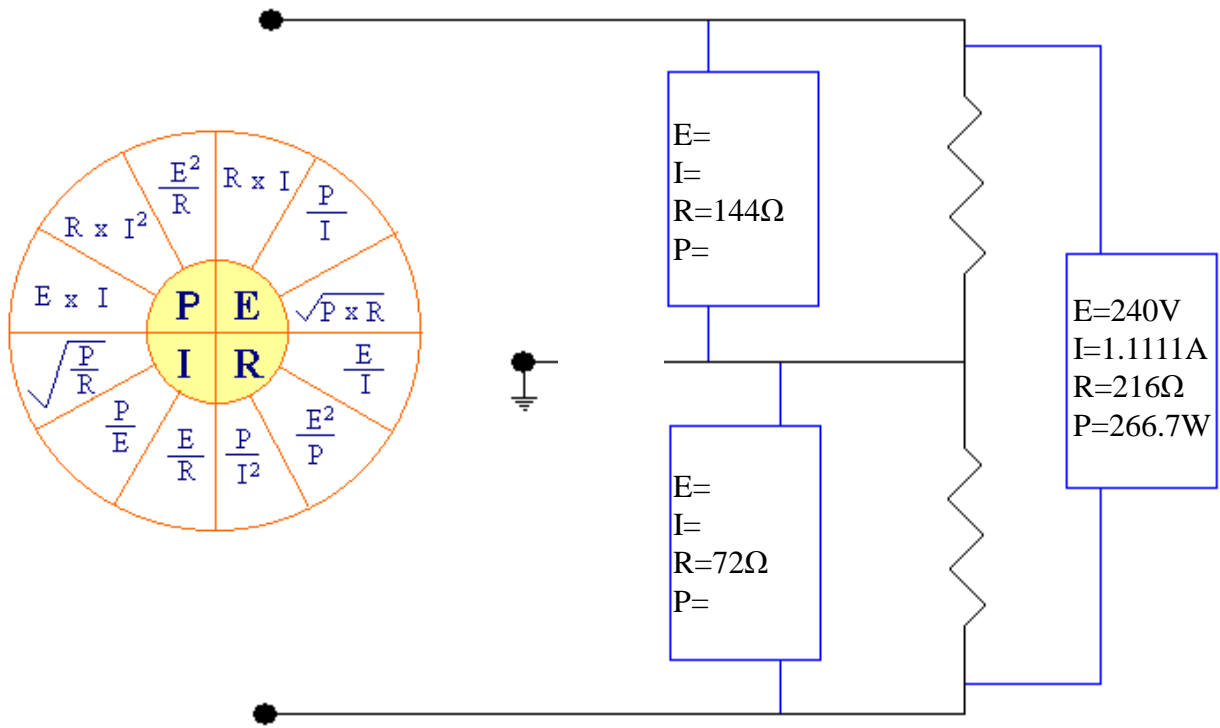
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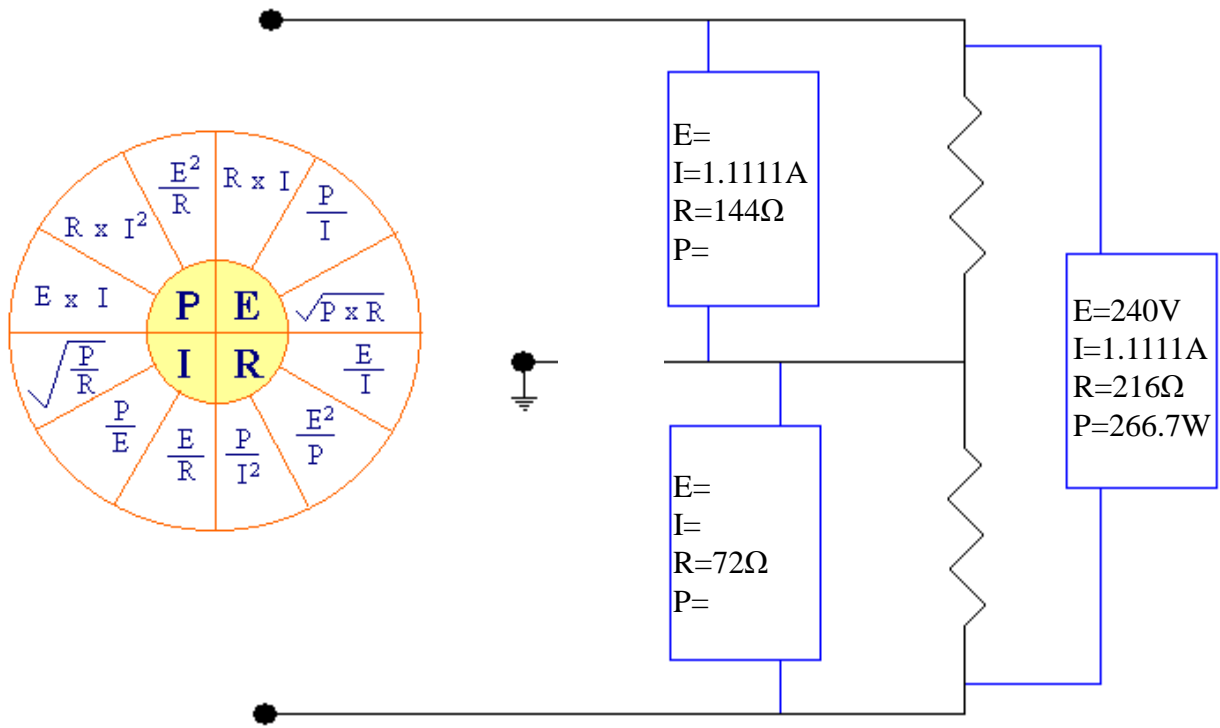
Now calculate I and P for the entire circuit.



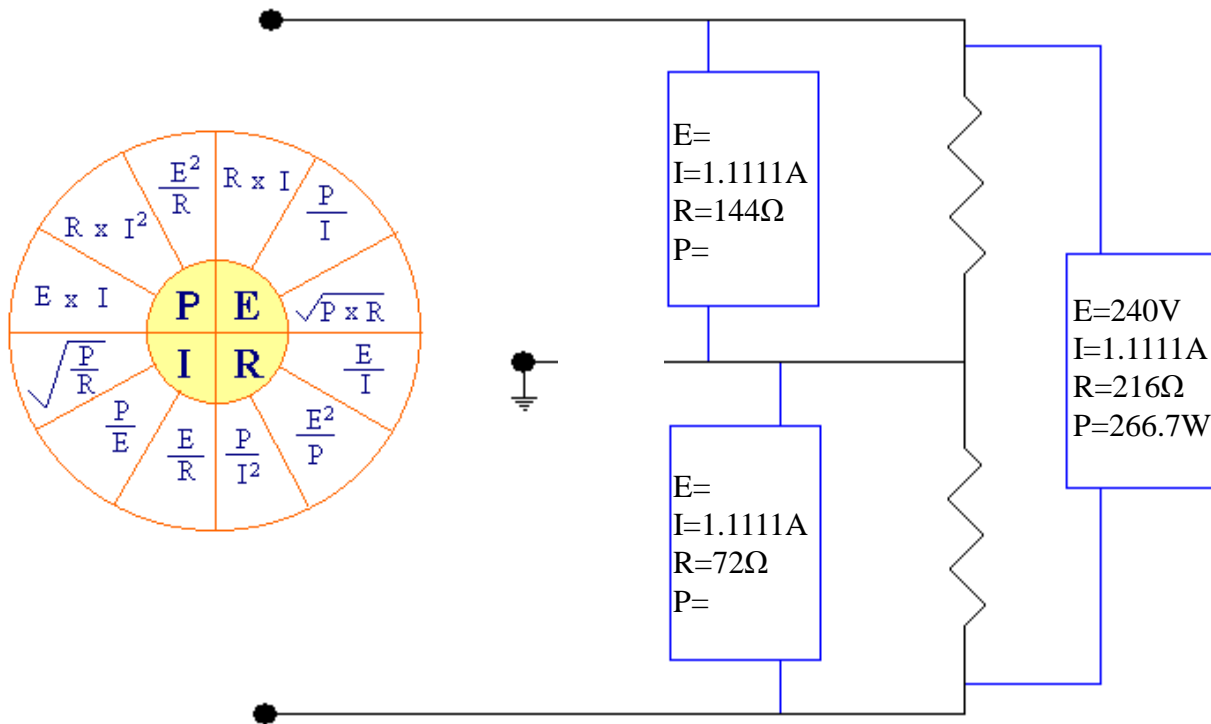
Since this is a series circuit, I is always the same.



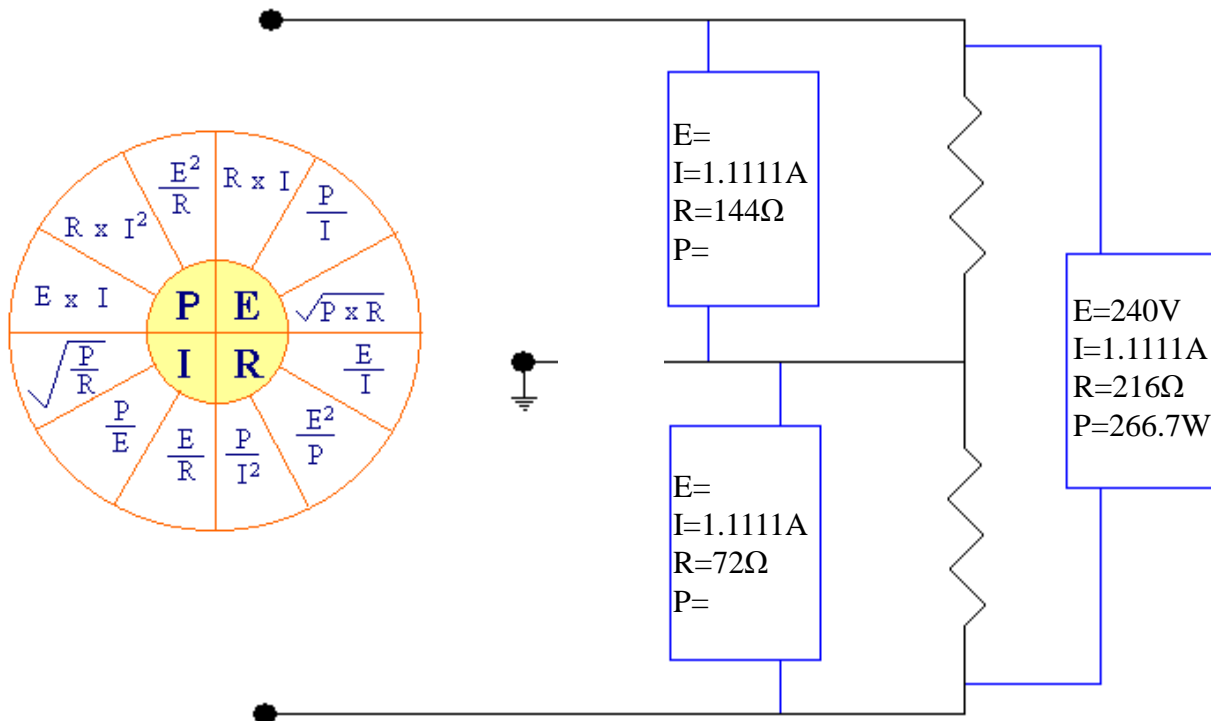
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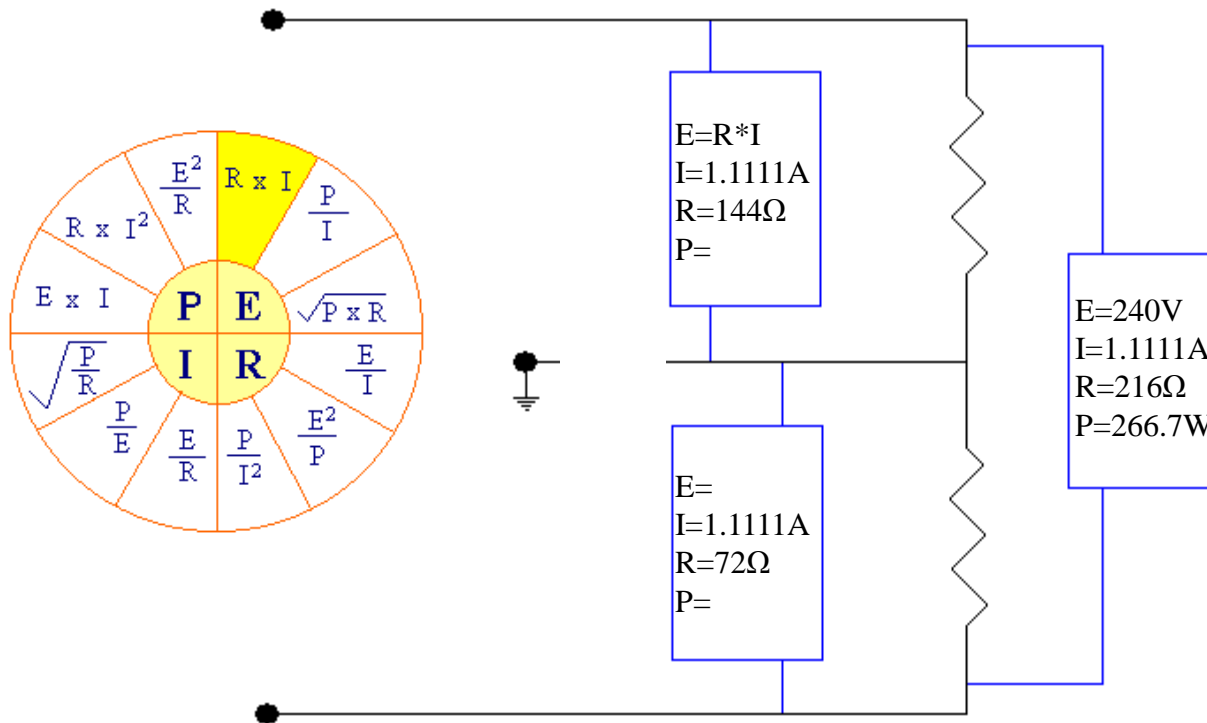
Since this is a series circuit, I is always the same.



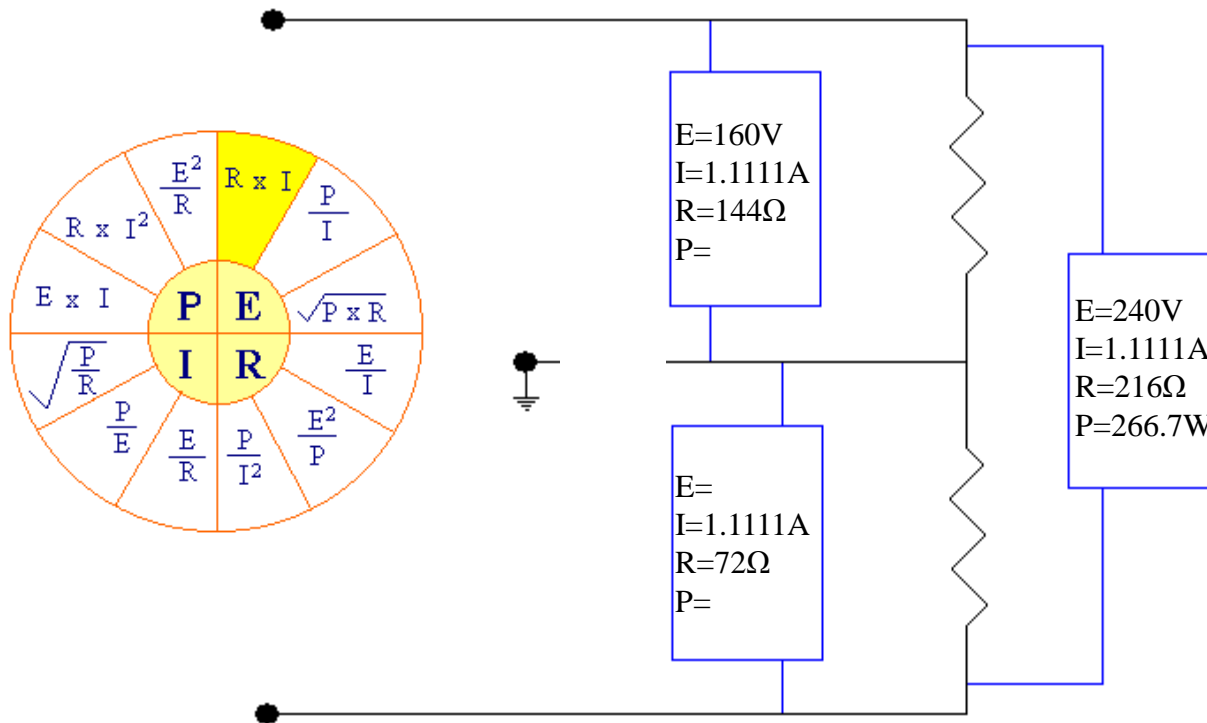
Now calculate the voltage across each of the two loads.



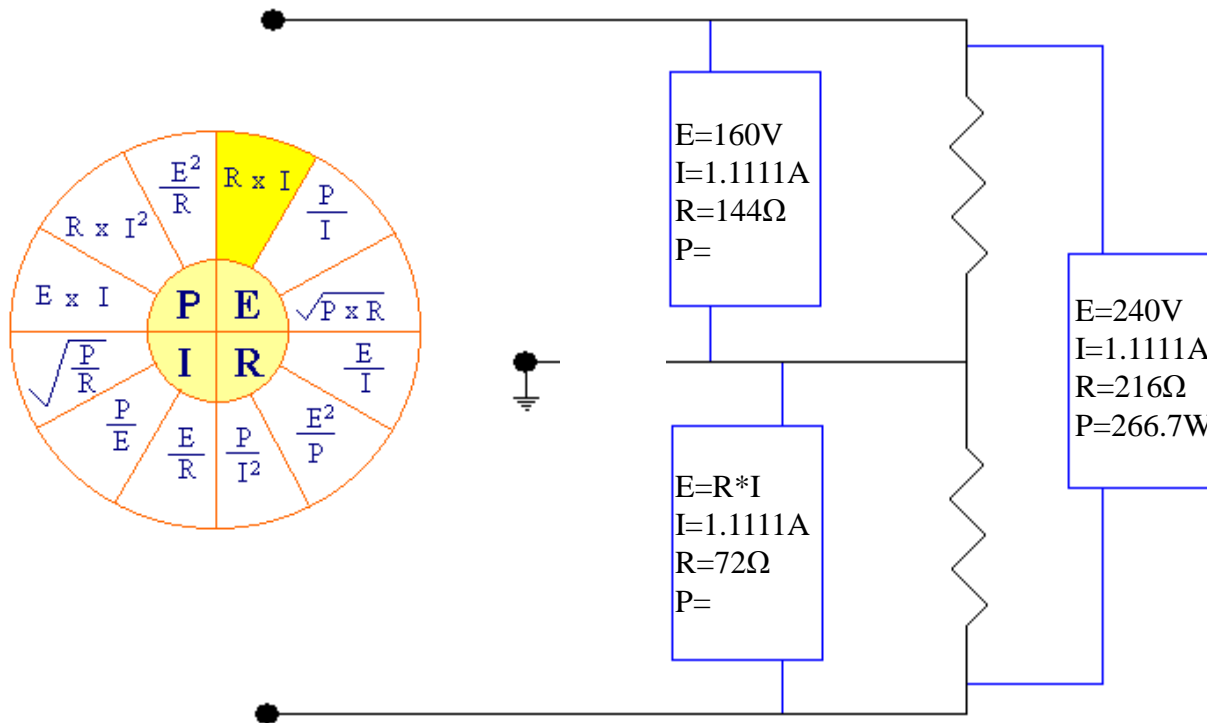
Now calculate the voltage across each of the two loads.



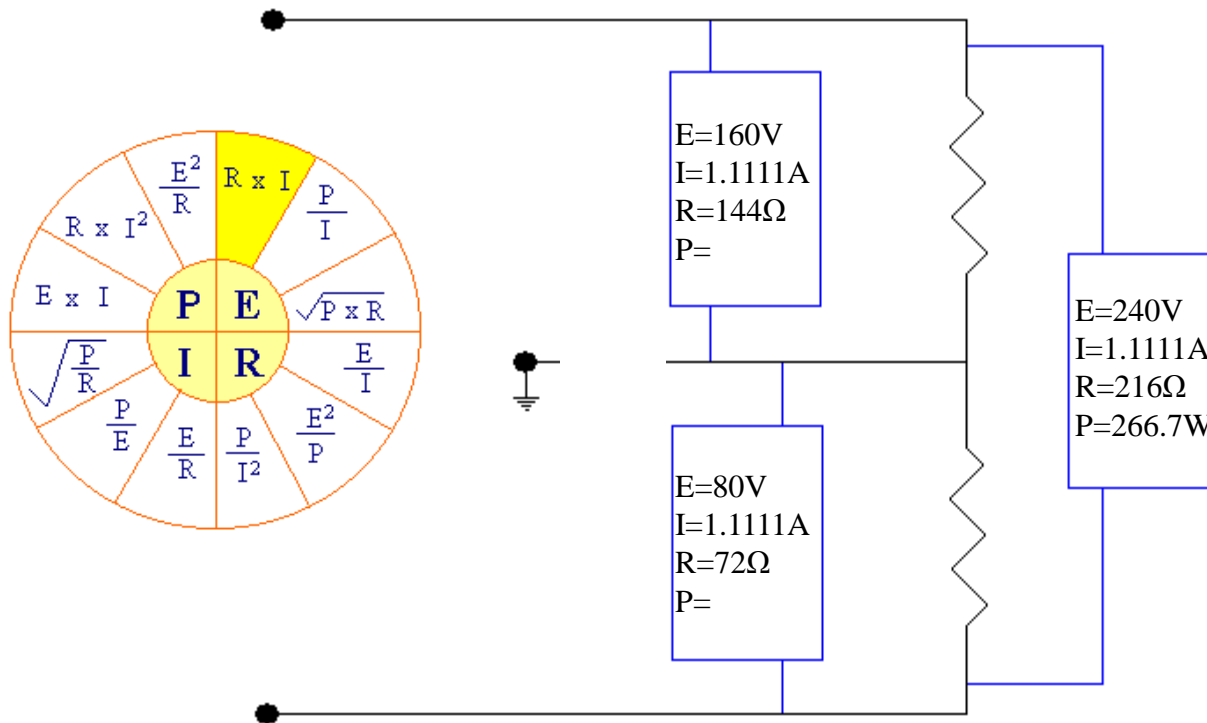
Now calculate the voltage across each of the two loads.



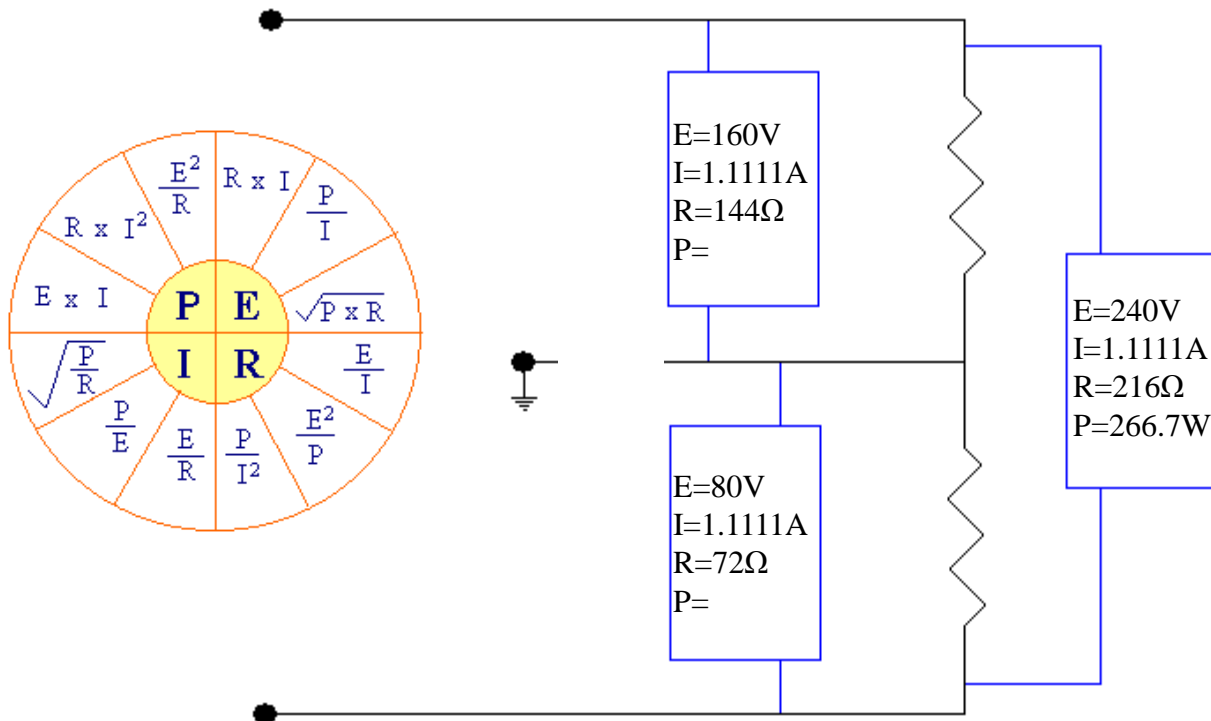
Now calculate the voltage across each of the two loads.



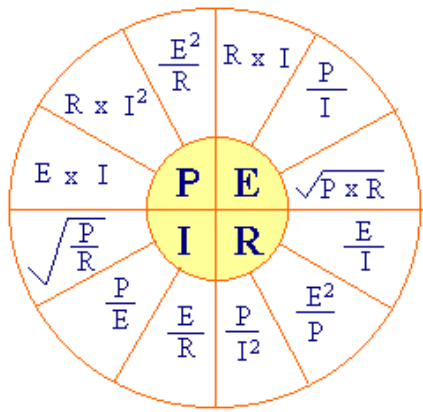
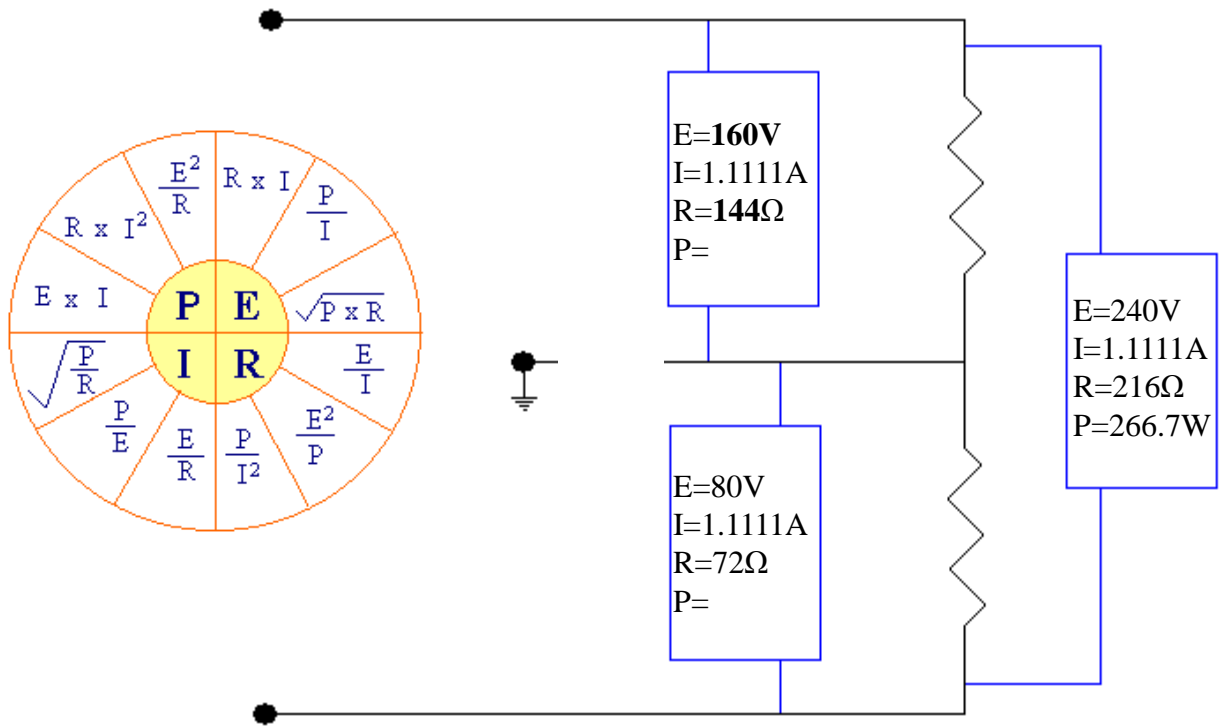
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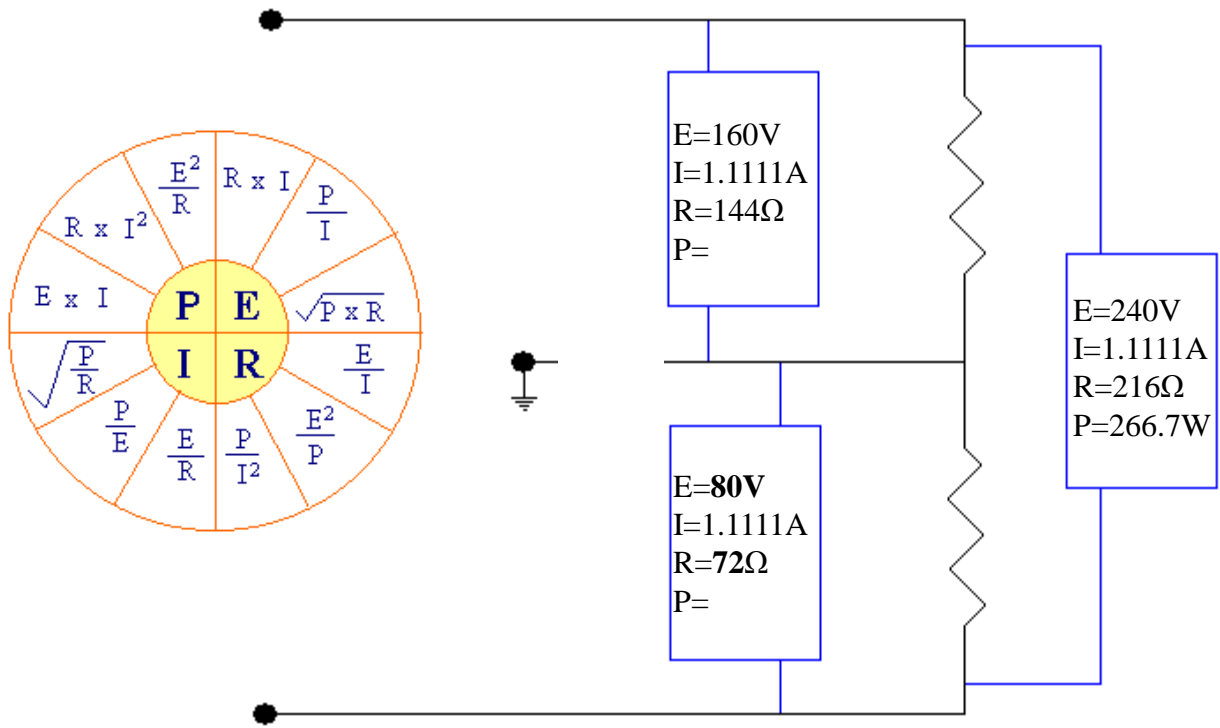
Now you can see what happens when you lose the neutral on a multiwire branch circuit.



The more resistance, the higher the voltage....



The less resistance, the lower the voltage.



This is Ohm's Law in a most practical use, and the reason Article 300.13(B) exists.

