Review guide for Physics in the Universe "last test of the semester!" YEAH!!

Students may bring in one page of notes.. one side only.. to use during the test. They must be handed in with the test however.

What are the concepts (definitions) of current, voltage and resistance? What are the units of each?

How does we 'visualize' charge moving around an electric circuit? How does electric current actually flow in electric circuits?

When we draw electric fields lines, what are we drawing? When we draw magnetic field lines, what are we are we drawing?

If a charge were to 'shot' into a magnetic fields, what direction would the force be on that charge? If a current carrying wire were place in a magnetic field, what direction would the force be?

Why does the current in an electric motor go down the faster the motor turns?

How does an electric generator work? How does an electric motor work? How are they 'they same', fundamentally?

What exactly is lighting and how does it form?

How is it 'safe' for PGE linemen to handle 500,000 volt power lines without dying? What strategies do they use to make sure they don't die?

What are electrical conductors? What are electrical insulators? What is it about their 'chemical makeup' or 'atomic structure' which allows them to be either conductors or insulators?

Why do things get charged by 'contact'? How do things get charged by 'induction'? What is the difference?

How is a circuit connected in series different form a circuit connected in parallel? Given a sample circuit diagram, can you determine the current through branches of a circuit? Can you determine the voltage across a circuit element? (like the practice worksheet we did?)

Given a real circuit, can you use a multi-meter to measure current, voltage and resistance? Can you determine the resistance of a circuit element based on measured voltage and current?

What is a capacitor? How does it work? Why do we use them? How do they affect circuits? How are they similar to batteries and how are they different?

Why do batteries 'drop' in voltage when used in a circuit? What is 'equivalent series resistance' (ESR) in a battery? How do we calculate it? Why does this 'non ideal' property cause problems in some situations?

What is a diode? Why do we use them? What is an amplifier? What are they used for?

More practice problems on the back!

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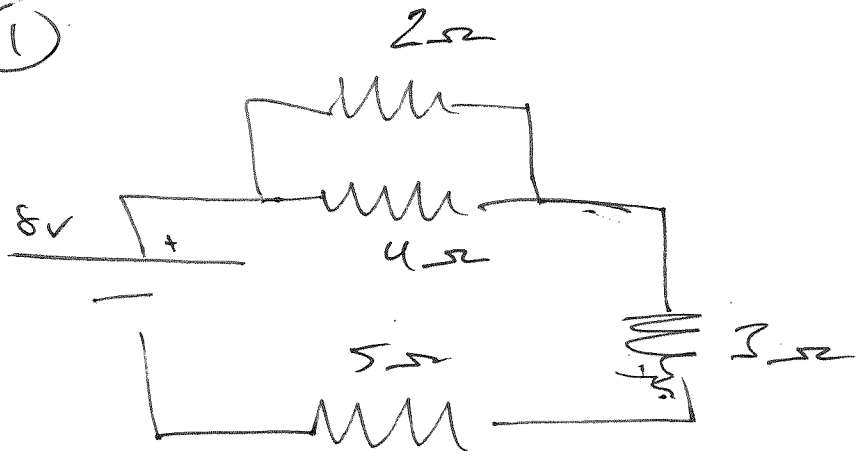

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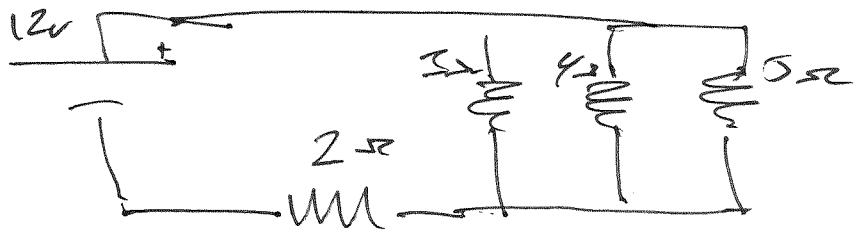

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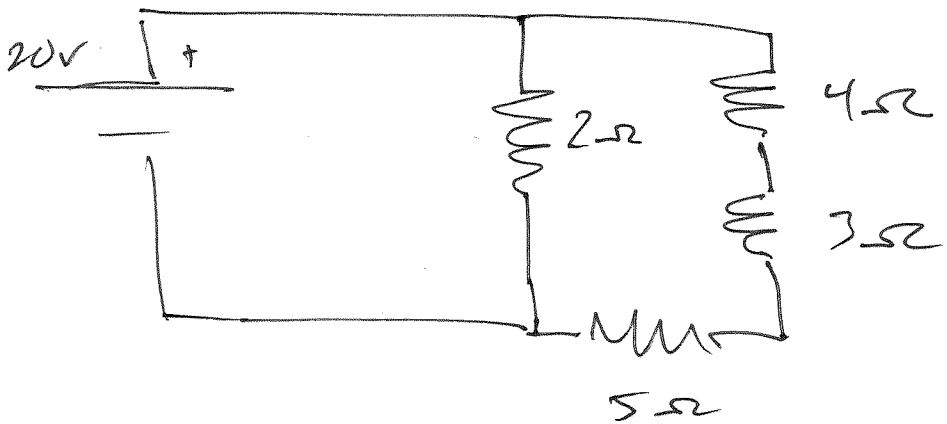

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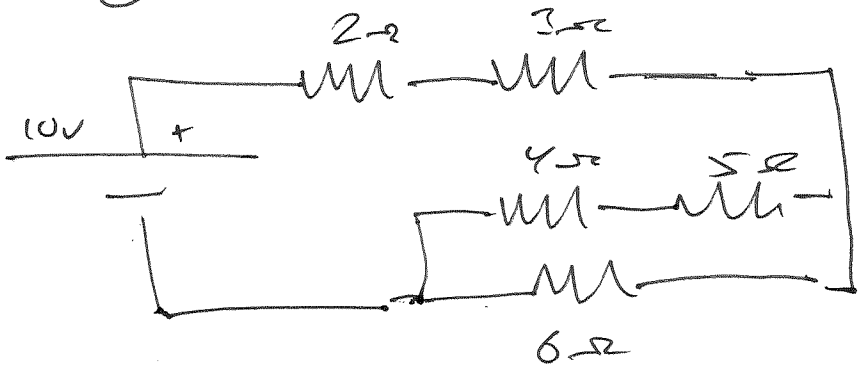

For all circuits: Determine the current through and voltage across, the 4Ω resistor