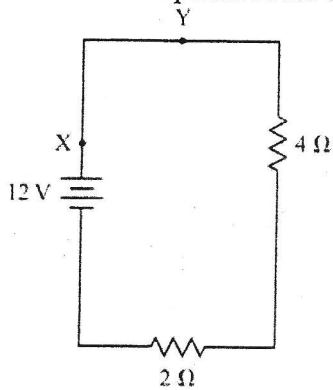


MCAS OPEN RESPONSE #3: ELECTROMAGNETISM

The diagram below shows a circuit with a 12 V battery connected in series with a $4\ \Omega$ resistor and a $2\ \Omega$ resistor. Two points in the circuit are labeled X and Y.



- Calculate the current in the circuit. Show your calculations and include units in your answer.
- Calculate the voltage drop across the $4\ \Omega$ resistor. Show your calculations and include units in your answer.
- Determine the voltage drop between point X and point Y. Explain the reasoning for your answer.
- Calculate the power of the entire circuit. Show your calculations and include units in your answer.