


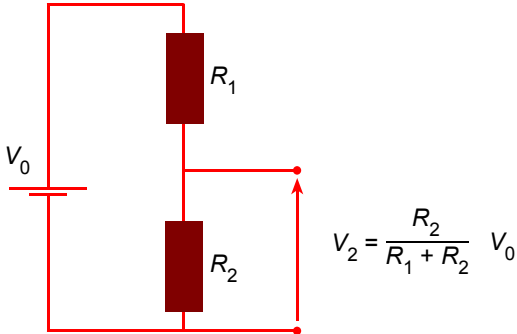



2 - Sensing - R & G, series and parallel	
<ul style="list-style-type: none"> For two or more resistors R1, R2, R3 etc in series, their combined resistance $R = R1 + R2 + R3 + \dots$ in parallel, their combined resistance R is given by $1 / R = 1 / R1 + 1 / R2 + 1 / R3 + \dots$ For conductors of conductance G1, G2, G3, etc in parallel, their combined conductance $G = G1 + G2 + G3 + \dots$ in series, their combined conductance $G = 1 / (1 / G1 + 1 / G2 + 1 / G3 + \dots)$ Note: $R = 1/G$ gives the rules for combining resistances. The SI unit of conductance is the siemens (S). The siemens is the same as the reciprocal of the ohm (i.e. Ω^{-1}). 	<p>Keywords Resistors Resistance Conductance Series Parallel Ohm Siemens</p> <p>2.05</p>

2 - Sensing - Errors	
<ul style="list-style-type: none"> Random error has to do with small unpredictable variations in quantities, for example electrical noise. Some variations in experimental results may appear to be random. <i>Random</i> fluctuations can be <i>reduced</i> by <i>averaging</i>. Systematic errors are biases in measurement which lead to measured values being systematically too high or too low. Systematic errors are more difficult to deal with. 	<p>Keywords Error Random Systematic Average Fluctuation</p> <p>2.07</p>

2 - Sensing - Potential divider	
<p>A potential divider can be to sense displacement.</p> <p style="text-align: center;">A potential divider</p> 	<p>Keywords Resistance Voltage Potential difference Sensor Displacement</p> <p>2.06</p>

2 - Sensing - Emf	
<ul style="list-style-type: none"> Electromotive force (emf) has to do with how much energy a source can produce for every coulomb of charge flowing round a circuit. Emf is defined as the energy generated by a source per unit charge. The SI unit of emf is the volt (symbol V). A source with an emf of one volt produces one joule of energy for every coulomb of charge flowing round a circuit. Electrical sources of energy include batteries, solar cells, thermocouples and dynamos. 	<p>Keywords Electromotive Emf Volt Voltage Coulomb Energy Charge Joule</p> <p>2.08</p>