

# Using TI 83+ Equation Solver for Electrical Circuit Problems

To run Equation Solver:

<ol style="list-style-type: none"> <li>1. <b>MATH</b></li> <li>2. <b>0:Solver</b> <b>ENTER</b></li> <li>3. <b>▸</b> to change your equation</li> <li>4. <b>VARΣ</b></li> <li>5. <b>▸</b> <b>Y-VARS</b> <b>ENTER</b></li> <li>6. <b>1:function</b> <b>ENTER</b></li> <li>7. <b>▾</b> to choose the correct equation <b>ENTER</b></li> </ol>	<ol style="list-style-type: none"> <li>1. <b>ENTER</b> to see the pieces of the formula</li> <li>2. enter 1 on the piece you want</li> <li>3. enter known values</li> <li>4. put cursor on the 1 of the piece you want</li> <li>5. <b>ALPHA</b> <b>[SOLVE]</b></li> </ol>
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To enter the equations only once, we will store them in <b>Y=</b> . Enter the equations as shown:	<b>Y=</b> Enter only the equations here. Do not enter any values.
Y1 = E - IR <b>Ohm's Law</b>	E=IR E=Voltage in volts I=Current in amperes R=Resistance in ohms
Y3 = T-A-B-C <b>Series Voltage</b>  The formula is for 3 voltage drops; it may need to be changed for your problem.	ET=E1+E2+E3+... T=A+B+C+... T=ET= Source voltage A=E1=Voltage drop B=E2=Voltage drop C=E3=Voltage drop
<b>Series Current</b>	IT=I1=I2=I3= ...
Y3 = T-A-B-C <b>Series Resistance</b>  The formula is for 3 resistances; it may need to be changed for your problem.	RT=R1+R2+R3+... T=A+B+C+... T=RT= Total resistance A=R1=Resistance B=R2=Resistance C=R3=Resistance
<b>Parallel Voltage</b>	ET=E1=E2=E3= ...
Y3 = T-A-B-C <b>Parallel Current</b>  The formula is for 3 currents; it may need to be changed for your problem.	IT=I1+I2+I3+... T=A+B+C+... T=Total current A=I1=current B=I2=current C=I3=current
Y2 = R-1/(A <sup>-1</sup> + B <sup>-1</sup> + C <sup>-1</sup> ) <b>Parallel Resistance</b>  The formula is for 3 resistances; it may need to be changed for your problem.	RE=1/(1/R1 + 1/R2 + 1/R3 + ...) R=1/(1/A + 1/B + 1/C + ...) R=Equivalent resistance A=R1=Resistance B=R2=Resistance C=R3=Resistance
Y4 = P - IE <b>Joule's Law</b>	P=IE      =E <sup>2</sup> /R      =I <sup>2</sup> R P=Power in Watts I=Current in amperes R=Resistance in ohms