pgs. 1-2:

1. Voltage
2. Direct current (DC)
3. Alternating Current (AC)
4. Amperes (amps), A
5. Ω, Resistance
6. Increases, Decreases
7. Current
8. Ohm's Law
9. Parallel
10. Current
11. Parallel
12. Parallel
13. Series
14. Ammeter, Voltmeter
15. Conductor, Insulator
16. Potentiometer
17. Short Circuit
18. Power
19. Kilowatt-hours

Current	I	Amperes	A
Voltage	V	Volts	V
Resistance	R	Ohms	Ω
Power	P	Watts	W
Electrical Energy	E	Joules	J

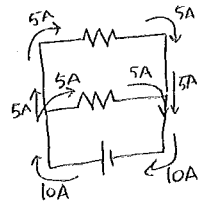
pgs. 3-4:

$R_{TOT} = 4\Omega$	$R_{TOT} = 3\Omega$	$V_{R1} = 12V$	$V_{R1} = 30V$
$I_A = 5A$	$I_A = 4A$	$V_{R2} = 12V$	$V_{R2} = 30V$
$I_B = 5A$	$I_B = 4A$	$R_{TOT} = 3\Omega$	$R_{TOT} = 6\Omega$
$V_{R1} = 10V$	$V_{R1} = 4V$	$I_A = 4A$	$I_A = 3A$
$V_{R2} = 10V$	$V_{R2} = 8V$	$I_B = 2A$	$I_B = 2A$
		$I_C = 2A$	$I_C = 5A$
← Series →		← Parallel →	

pgs. 5-6:

1. $I = 3A$
2. 6Ω, 1A
3. 12Ω
4. (a) Circuit B
   (b) Circuit A
   (c) 4 & 6 = brightest
   (d) 1, 2, 3 = dimmest (5 = off)
   (e) 4 & 6
   (f) Circuit B has more current, (both have the same voltage), so B has more Power.
   (g) Circuit B! (More Watts).

1. (i) 5A
   (ii) 10A
   (iii) →



2. D is not equivalent
3. (a) 20V
   (b) i. 4A
   ii. 4A
   iii. 2A
   (c) 10A
   (d) $\frac{1}{R_{TOT}} = \frac{1}{5} + \frac{1}{5} + \frac{1}{10} = \frac{5}{10}$
   & $\frac{R_{TOT}}{1} = \frac{10}{5}$ { 2Ω

pgs. 7-8:

(1) a. $R_{TOT} = 4.4\Omega$
b. $I = 1.36A$
c. 6V
d. $I_{R1} = I_{R2} = 0.6A$
$I_{R3} = 0.75A$
e. $P_{R1} = P_{R2} = 3.6W$
$P_{R3} = 4.5W$

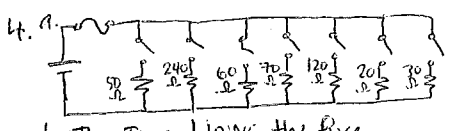
(2) a. $R_{1,2} = 4\Omega$
b. $R_{TOT} = 7.5\Omega$
c. $R_x = 3.5\Omega$
d. $V_{Rx} = 1.4V$
$V_{R1} = V_{R2} = 1.6V$
e. If R_x↑, the total resistance of the circuit increases, so the current decreases.

(3) a. $R_{TOT} = 5.7\Omega$
b. $I_B = 1.58A$ ← c. $I_{R1} = 1.58A$
d. $V_{R1} = 7.11V$
$V_{R2} = V_{R3} = 1.89V$
e. $I_{R2} = 0.63A$
$I_{R3} = 0.95A$

(4) a. $R_{3,4} = 2\Omega$ $R_{2,3,4} = 5\Omega$ $R_{5,6} = 3\Omega$ $R_{5,6,7} = 5\Omega$] $R_{2,3,4,5,6,7} = 2.5\Omega$
$R_{TOT} = 12.5\Omega$
b. $I_B = 2A$
c. $I_{R7} = 1A$
d. $V_{R7} = 2V$
e. If R_1 gets $V_{R1} = I_B \cdot R_{R1} = (10)(2) = 20V$ then, branch 5,6,7 gets 5V. And if R7 uses 2V, Then both R_5 & R_6 get 3V.
f. $I_{R6} = \frac{3V}{12\Omega} = 0.25A$.

pgs. 9-10:

1. 24W
2. 960W
3. 0.625A
4. a. $R = 24\Omega$
   b. $P = 600W$
   c. $P = 0.6W$
5. a. 5kW
   b. 10kWh
   c. $1.50
6. a. 300min
   b. 5hrs
   c. 1.2kW
   d. 6kWh
   e. $0.90
7. a. 20.45A
   b. 10.76Ω
   c. 4.5kW
   10kWh
   d. $140.40



b. The Iron blows the fuse

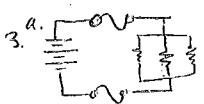
5. The heater trips the circuit breaker

pgs. 11-12:

1. A fuse is a wire that breaks when too much current flows. This protects your wires because it will blow before the wiring lights on fire!

2. In a series circuit, more resistors decreases the current flow. (no fuse needed!)

3. a.



b. Just under 600W
c. Just under 225W