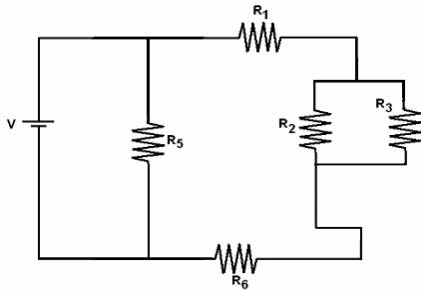


SECTION 1

- /6 1. **SCHEMATIC DIAGRAM**
Note that R_4 is shorted out



- /18 2. **THEORETICAL QUANTITIES**

Resistor	Resistance Ω	Current A	Voltage V
R_1	18	0.451	8.13
R_2	2700	0.0025	6.73
R_3	15	0.449	6.73
R_4	330	0	0
R_5	1500	0.040	60.0
R_6	100	0.451	45.1

- /10 3. **EXPERIMENTAL QUANTITIES**

Resistor	Resistance Ω	Current A	Voltage V
R_1	18	0.431	7.76
R_2	2700	0.429	6.43
R_3	15	0.429	6.43
R_4	330	0.000	0.0
R_5	1500	0.0382	57.3
R_6	100	0.431	43.1

/3 4. **57.3 volts**

/3 5. **5.75 Ω**

/3 6. **0 W (it is shorted)**

SECTION 2

- /9 1. **"WYE" ARRANGEMENT**

R_1	1.20 k Ω
R_2	16.4 k Ω
R_3	10.0 k Ω

- /9 2. **"DELTA" ARRANGEMENT**

R_A	11.9 k Ω
R_B	19.6 k Ω
R_C	163 k Ω

/3 3. **5.62 mA**

/3 4. **0.618 W**

/3 5. **NO**

**This resistor is rated for 1.00 watts.
Its power dissipation is
significantly less than 1 watt.**

SCHOOL CODE

SCHOOL NAME

PARTICIPANTS

SECTION 3

/3 1. **4.00 seconds**

/3 2. **1.00 μ F or 1E-6 F**

/3 3. **30 μ C or 3E-5 C**

/3 4. **7.5E-6 amps or 7.5 μ A**

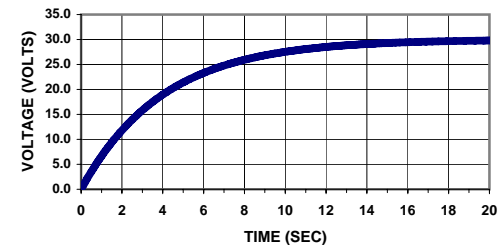
/3 5. **0**

/3 6. **15.0 volts**

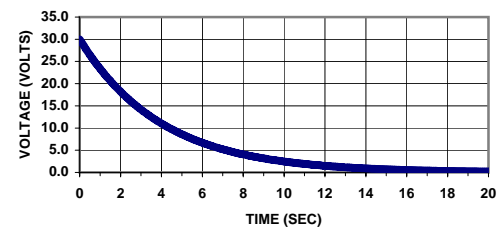
/3 7. **30.0 volts**

/3 8. **11.7 volts**

- /5 **CAPACITOR VOLTAGE VS. TIME**



- /5 **RESISTOR VOLTAGE VS. TIME**



SECTION 4

/18 1.	R, Ω	V, volts	I, amps
R ₁	8.00	2.05	0.257
R ₂	280	9.05	0.0323
R ₃	47.0	10.6	0.224

/2 2. Infinite

/2 3. limiting resistor(s)

/2 4. zero (no resistance)

/2 5. shunt resistor(s)

/2 6. diode

/1 7. A

/1 8. B

/2 9. Infinite

/1 10. semiconductor (silicon)

11.	QUANTITY	UNIT NAME	FUNDAMENTAL UNITS
11.	Current	G	L
12.	Potential difference	D	H
13.	Resistance	C	K
14.	Capacitance	F	N
15.	Energy	A	I
16.	Power	E	J
17.	Charge	B	M

SECTION 5

/2 1. $V/2R$ or $0.5V/R$

/2 6. $41V/81R$ or $0.506V/R$

/2 2. $V/2$ or $0.5V$

/2 7. $0.494V$ or $40V/81$

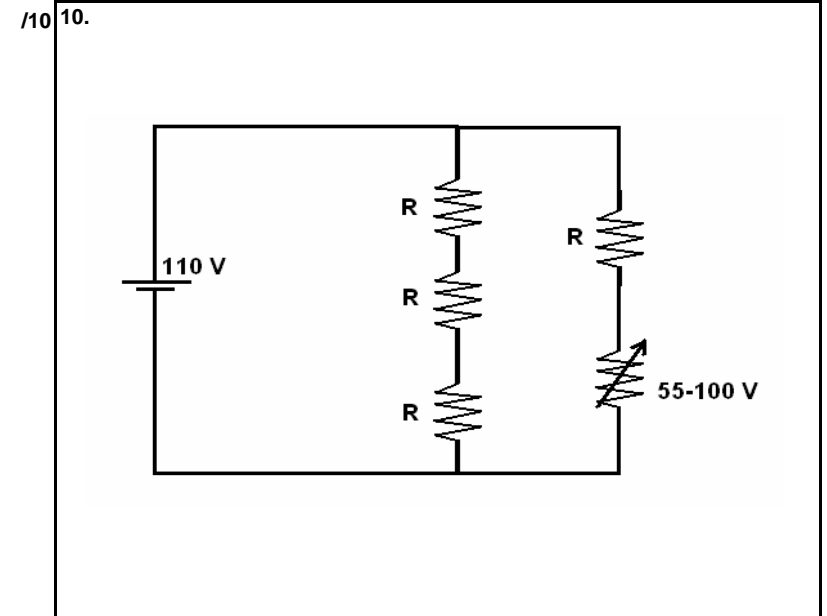
/2 3. $V/2.1R$ or $0.476V/R$

/2 8. 1.24%

/2 4. 4.76%

/2 9. less accurate

/2 5. more accurate



BONUS Georg Simon Ohm