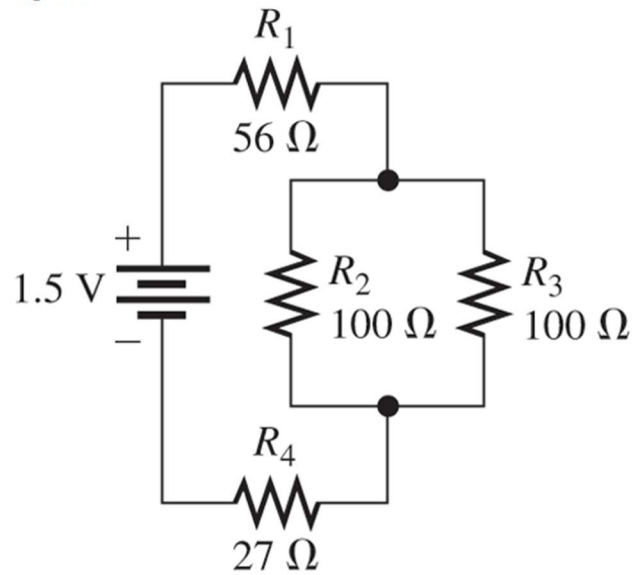# CPE 1140 - Homework # 7

Chapter 7

3. In each circuit of **Figure 7–61** 🔲, identify the series and parallel relationships of the resistors viewed from the source.
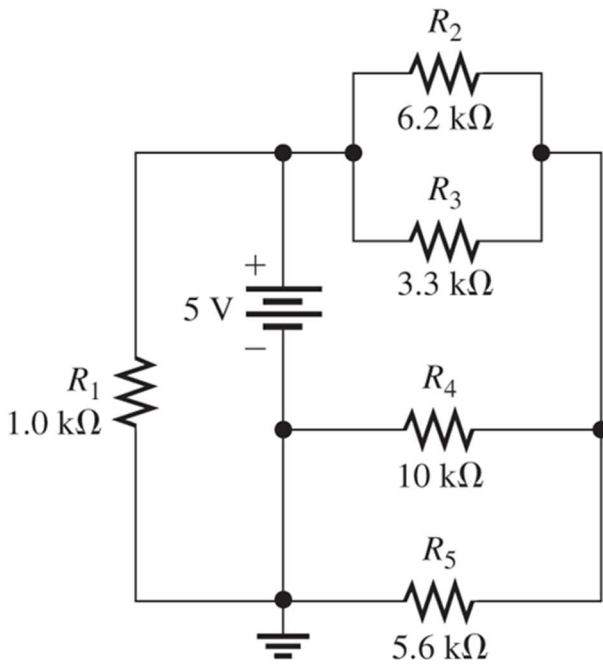
Figure 7–61

(a)

R₂ and R₃ are in parallel.

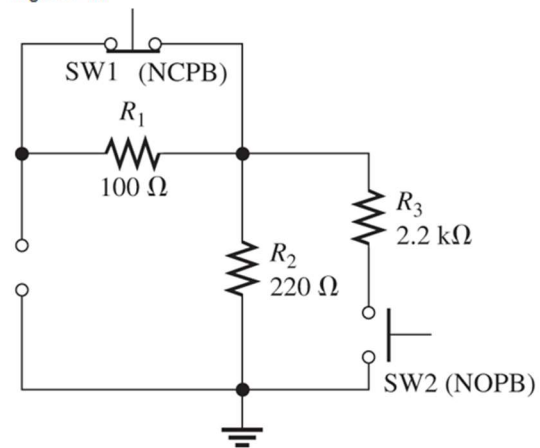The parallel set is in series with R₁, R₄ and the source voltage

(c)

The first parallel set is R_2 and R_3 this set is in series with the parallel set of R_4 and R_5. R_1 is in parallel with the voltage source.
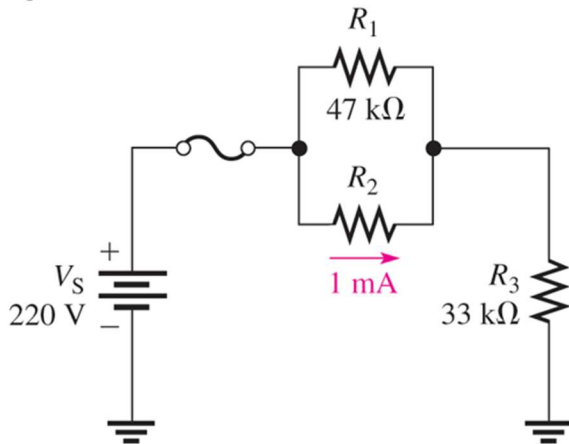
13. Find R_T for all combinations of the switches in **Figure 7–65** ▢.

Figure 7–65

Switch set binary (SW2 SW1)	Resistor output
00	$R_1 + R_2$
01	R_2
10	$R_1 + (R_3 \,||\, R_2)$
11	$R_3 \,||\, R_2$

*21. (a) Find the value of R_2 in **Figure 7–69** 🖳. (b) Determine the power in R_2.
Figure 7–69

Voltage divider

$$V_{R2 \text{ and } R1} = \frac{47 * 10^3}{(33 + 4)*10^3} *220 = 129.250 \text{ V}$$

      Since R_1 and R_2 are in parallel they have the same voltage.

V = IR
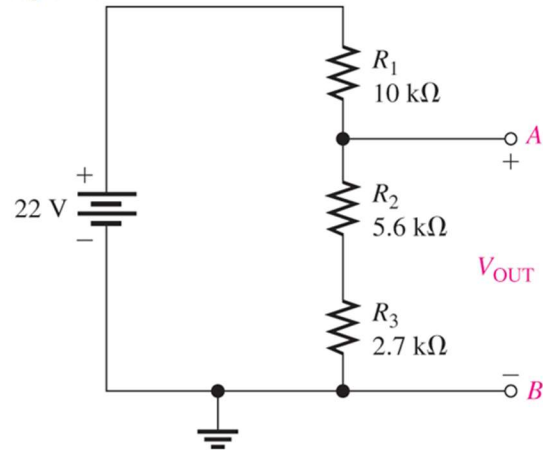
$$\frac{V}{I} = R$$

$$\frac{129.250}{10^{-3}} = R$$

$R_2 = 129.250$ kΩ

Figure 7-73

29. In **Figure 7-73** 🔲, determine the output voltage with a $33 \text{ k}\Omega$ load connected between A and B.

$$V_{R2 + R3} = \frac{(5.6+2.7)*10^3}{(5.6+2.7+10)*10^3} *22$$

$$V_{R2 + R3} = \frac{8.3}{18.3} *22 = 9.978 \text{ V}$$

R2 and R3 taken as a single resistor.

35. On which one of the following voltage range settings will a voltmeter present the minimum load on a circuit?
   a. 1 V
   b. 10 V
   c. 100 V
   d. 1,000 V

I am guessing 1000 V. Since to have an accurate reading at high voltages the load resistance might be gigantic.