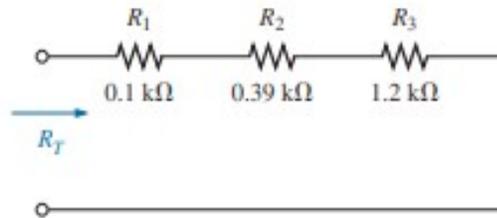
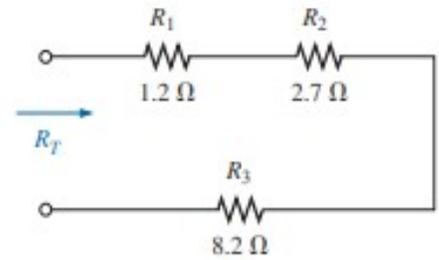


Problem 1.

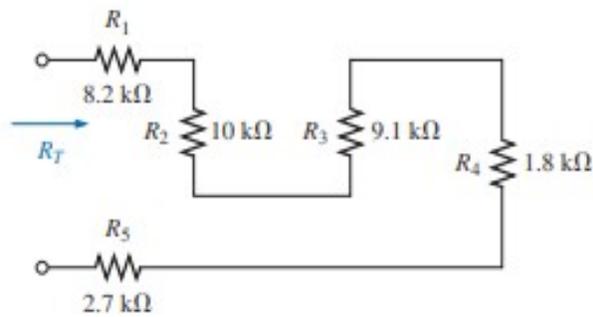
2. Find the total resistance R_T for each configuration in Fig. 5.86. Note that only standard resistor values were used.



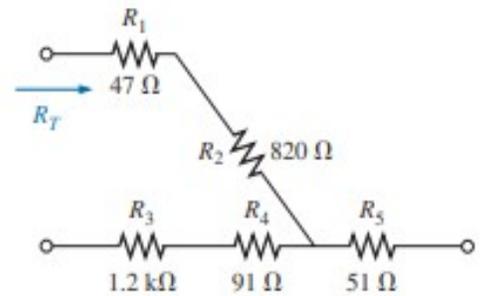
(a)



(b)



(c)



(d)

2.

A.) $R_t = 0.1 + 0.39 + 1.2 = 1.69 \text{ k ohms}$

B.) $R_t = 1.2 + 2.7 + 8.2 = 12.1 \text{ ohms}$

C.) $R_t = 8.2 + 10 + 9.1 + 1.8 + 2.7 = 31.8 \text{ k ohms}$

D.) $R_t = 47 + 820 + 1200 + 91 + 51 = 2209 \text{ ohms}$

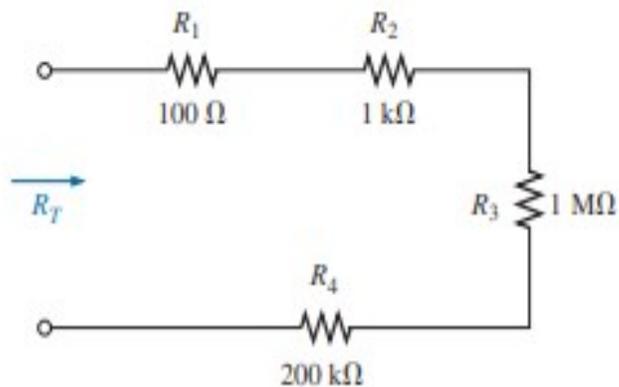


FIG. 5.88

Problem 4.

4. For the circuit in Fig. 5.88, composed of standard values:

a.) Which resistor will have the most impact on the total

resistance? **Resistor 3**

b.) On an approximate basis, which resistors can be ignored

when determining the total resistance? **Resistor 1**

c.) Find the total resistance, and comment on your results

for parts (a) and (b)

$$R_t = 100 + 1000 + 1,000,000 + 200,000 = 1,201,100$$

A.) Resistor 3 has 1,000,000 ohms, which is the most out of all the resistors, so it will impact the most.

B.) Resistor 1 can be ignored because it's the resistor with the least amount of ohms, on an approximate basis. If they were concerning the exact value then every resistor would be required.

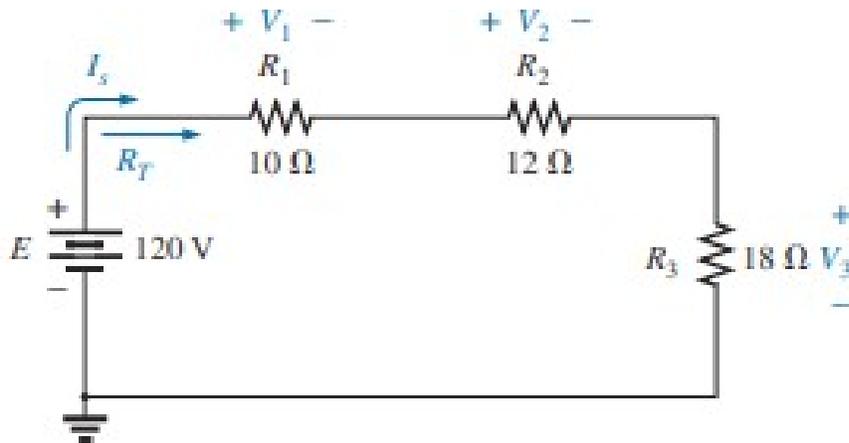


FIG. 5.91

Problem 7.

7. For the series configuration in Fig. 5.91, constructed of standard values:

a. Find the total resistance. $R_t = 10 + 12 + 18 = 40$ ohms

b. Calculate the current. $I = E/R$ $I = 120/40 = 3A$

c. Find the voltage across each resistive element.

$$R_1 = 10 \times 3 = 30V$$

$$R_2 = 12 \times 3 = 36V$$

$$R_3 = 18 \times 3 = 54V$$

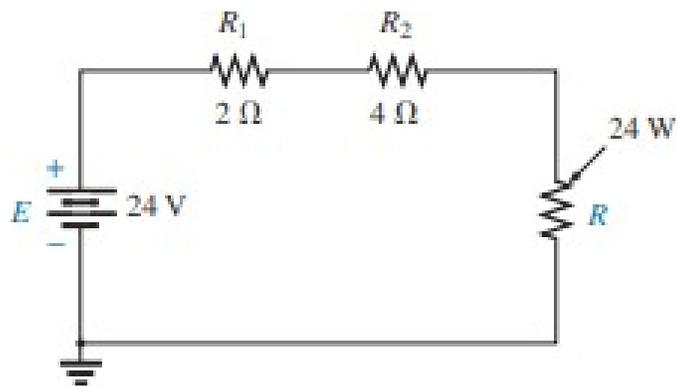


FIG. 5.100
Problem 16.

16.) For the conditions specified in Fig. 5.100, determine the unknown resistance.

$$R_1 + R_2 = 6 \quad R_3 + 6 = 24 = 24 - 6 = R_3 = 18 \text{ ohms}$$

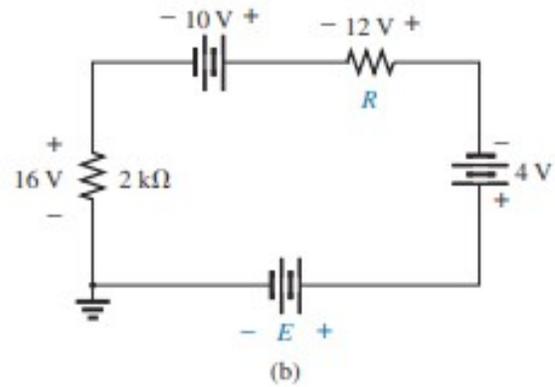
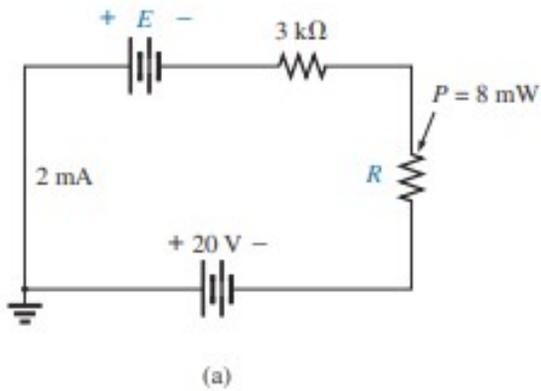
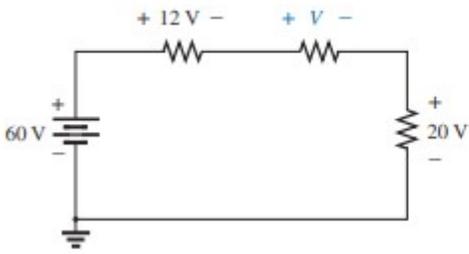
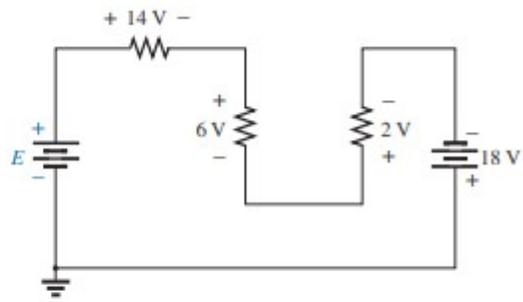


FIG. 5.103
Problem 19.

19. Find the unknown voltage source and resistor for the networks in Fig. 5.103. First combine the series voltage sources into a single source. Indicate the direction of the resulting current.



(a)



(b)

FIG. 5.105
Problem 21.

21.) Using Kirchhoff's voltage law, determine the unknown voltages for the configurations in Fig. 5.105.

a.)

b.)

$$V_1 + V_2 + V_3 = 60V$$

$$V_1 + V_2 + V_3 + V_4$$

$$12 + V_2 + 20 = 60V$$

$$= 40V$$

$$32 + V_2 = 60V$$

$$60 - 32 = V_2 = 28V$$

$$E =$$

$$14 + 6 + 2 + 18 = E$$

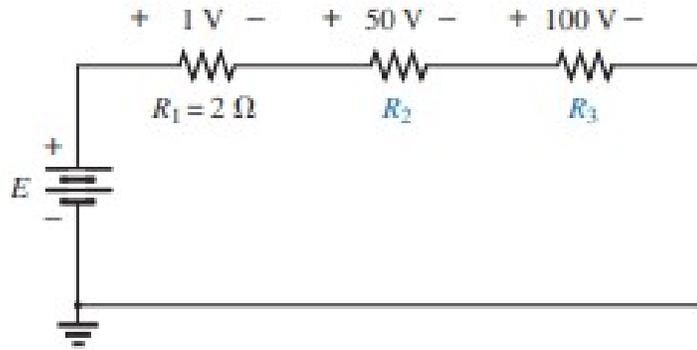


FIG. 5.108

Problem 24.

24.) Determine the values of the unknown resistors in Fig. 5.108 using the provided voltage levels.

$$R_1 = 2 \text{ ohms} \quad V_1 = 1 \quad I = \frac{1}{2} = 0.5 \text{ A}$$

$$R_2 = 50/0.5 = 100 \text{ ohms}$$

$$R_3 = 100/0.5 = 200 \text{ ohms}$$