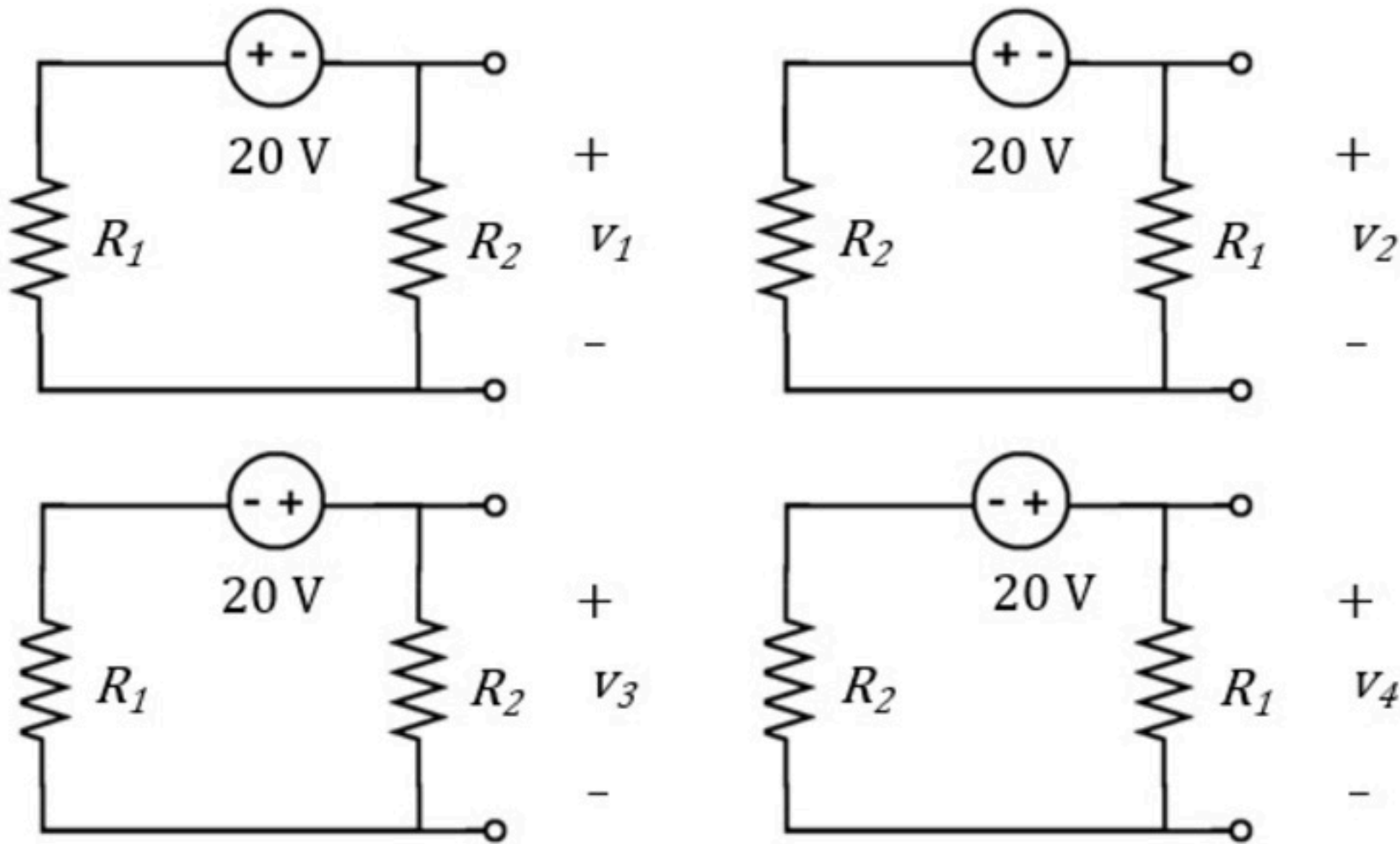


Basic analysis 004

Problem has been graded.

Determine the voltages v_1 , v_2 , v_3 and v_4



Given Variables:

R_1 : 4 ohm

R_2 : 6 ohm

Calculate the following:

v_1 (V) :

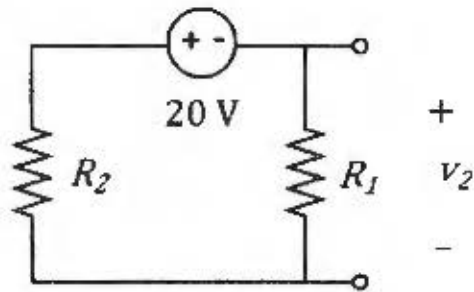
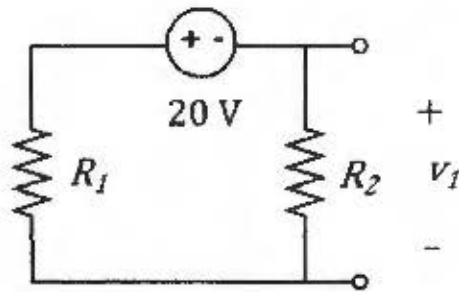
v_2 (V) :

v_3 (V) :

v_4 (V) :

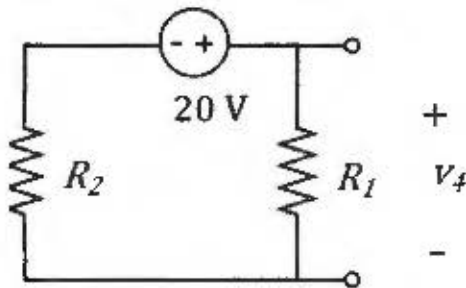
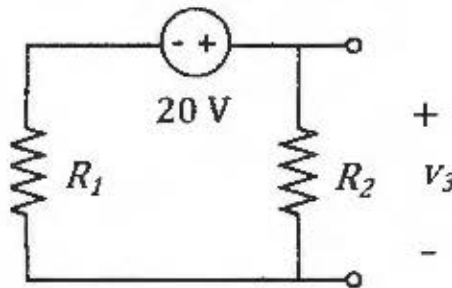
Hint: Voltage divider and mind the signs.

Determine the voltages v_1, v_2, v_3 and v_4

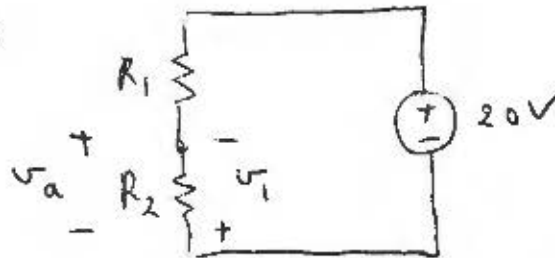


$$R_1 = 4 \Omega$$

$$R_2 = 6 \Omega$$



(a) VOLTAGE DIVIDER



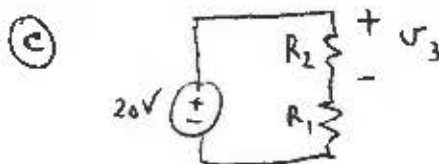
$$v_a = 20 \cdot \frac{R_2}{R_1 + R_2} = 20 \cdot \frac{6}{10} = 12 \text{ V}$$

$$v_1 = -v_a$$

$$v_1 = -12 \text{ V}$$

(b) SAME IDEA: $v_2 = -20 \cdot \frac{R_1}{R_1 + R_2} = -20 \cdot \frac{4}{10} = -8$

$$v_2 = -8 \text{ V}$$



$$v_3 = 20 \cdot \frac{R_2}{R_1 + R_2} = 20 \cdot \frac{6}{10} = 12$$

$$v_3 = 12 \text{ V}$$

(d) $v_4 = 20 \cdot \frac{R_1}{R_1 + R_2} = 20 \cdot \frac{4}{10} = 8$

$$v_4 = 8 \text{ V}$$