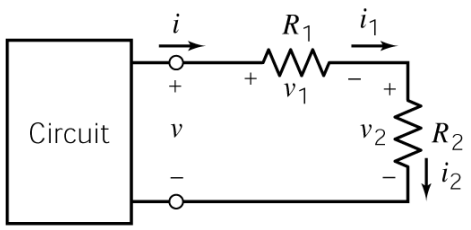
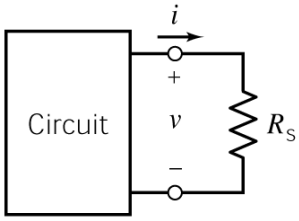
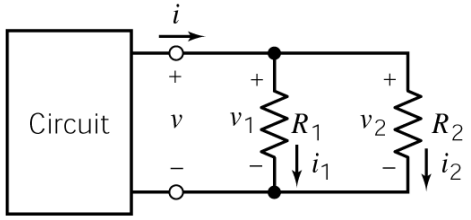
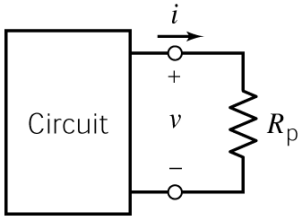
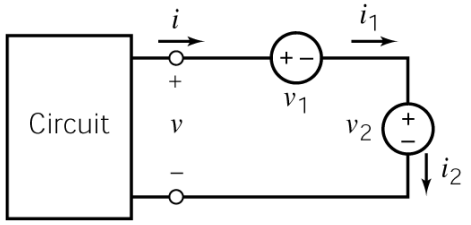
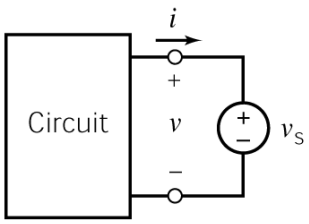
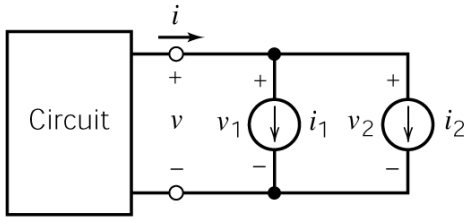
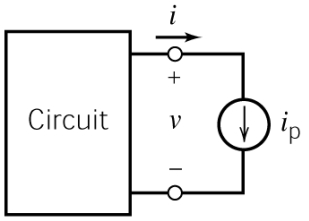
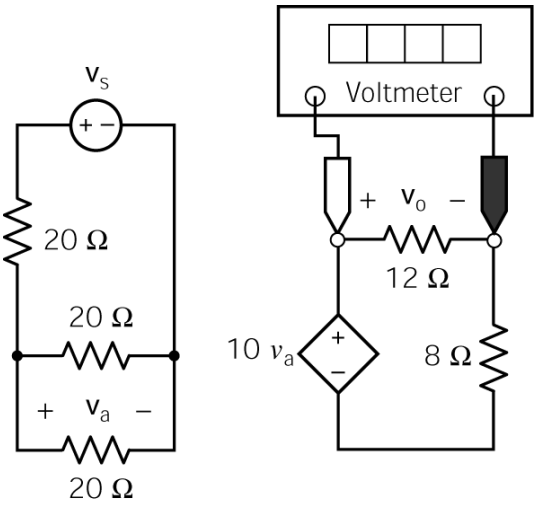
Table 3.10-1 Equivalent Circuits for Series and Parallel Elements

Series resistors		
	$i = i_1 = i_2,\ v_1 = \dfrac{R_1}{R_1 + R_2}\, v,$ and $v_2 = \dfrac{R_2}{R_1 + R_2}\, v$	$R_s = R_1 + R_2$ and $v = R_s i$
Parallel resistors		
	$v = v_1 = v_2,\ i_1 = \dfrac{R_2}{R_1 + R_2}\, i,$ and $i_2 = \dfrac{R_1}{R_1 + R_2}\, i$	$R_p = \dfrac{R_1 R_2}{R_1 + R_2}$ and $v = R_p i$
Series voltage sources		
	$i = i_1 = i_2$ and $v = v_1 + v_2$	$v_s = v_1 + v_2$
Parallel current sources		
	$v = v_1 = v_2$ and $i = i_1 + i_2$	$i_p = i_1 + i_2$

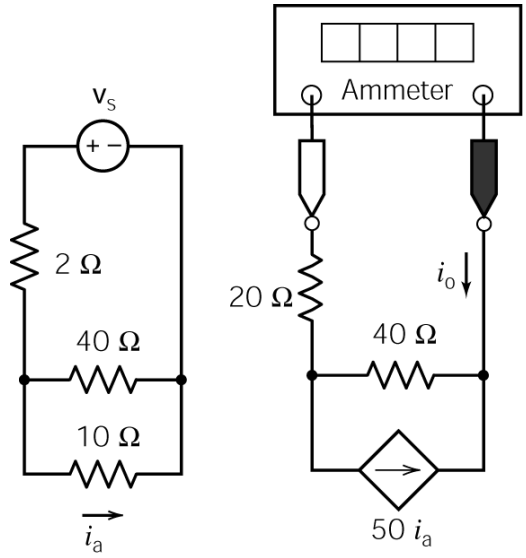
Problem 1.

The input to this circuit is the voltage of the independent voltage source. The output is the voltage measured by the meter. Show that the output is proportional to the input. Determine the value of the constant of proportionality.



Problem 2.

The input to this circuit is the voltage of the independent voltage source. The output is the current measured by the meter. Show that the output is proportional to the input. Determine the value of the constant of proportionality.



Problem 3

Determine the value of the voltage measured by the meter.