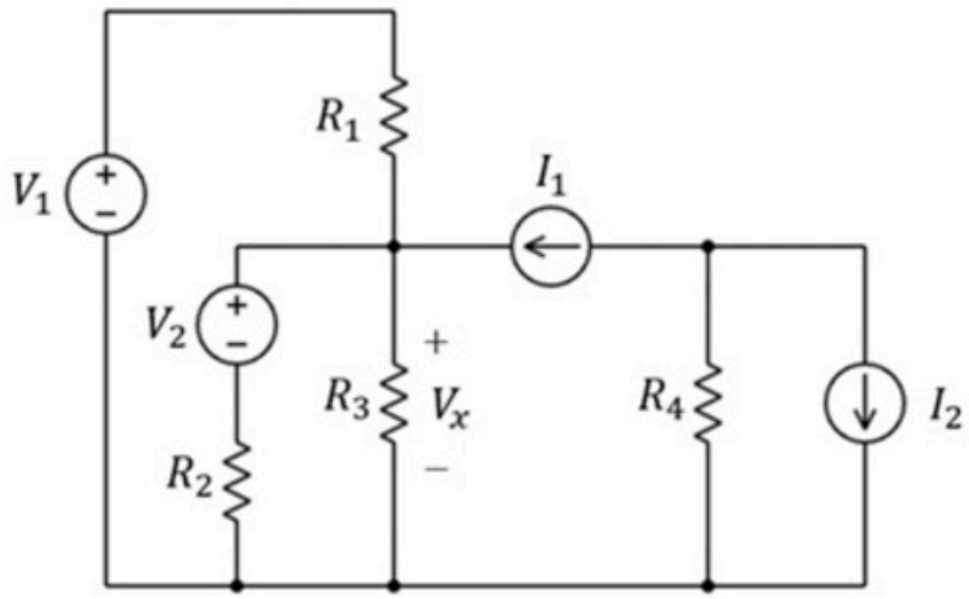
Circuit theorems 015

Problem has been graded.

Consider the circuit below. You are not given the values of V_1, V_2 and I_2. However, you are told the values of the other components and that of V_x.

(a) What is the new value of V_x when all the source values (i.e., V_1, V_2, I_1 and I_2) are doubled? We will call this new value V_{x1}.

(b) What is the new value of V_x when only I_1 is doubled and the other sources are what they were originally? We will call this new value V_{x2}.



Given Variables:

R1 : 10 ohm

R2 : 10 ohm

R3 : 5 ohm

R4 : 7 ohm

I1 : 2 A

Vx : 16 V

Calculate the following:

Vx1 (V) :

Vx2 (V) :

> Hint: Use linearity and superposition to express Vx as a linear combination of all sources