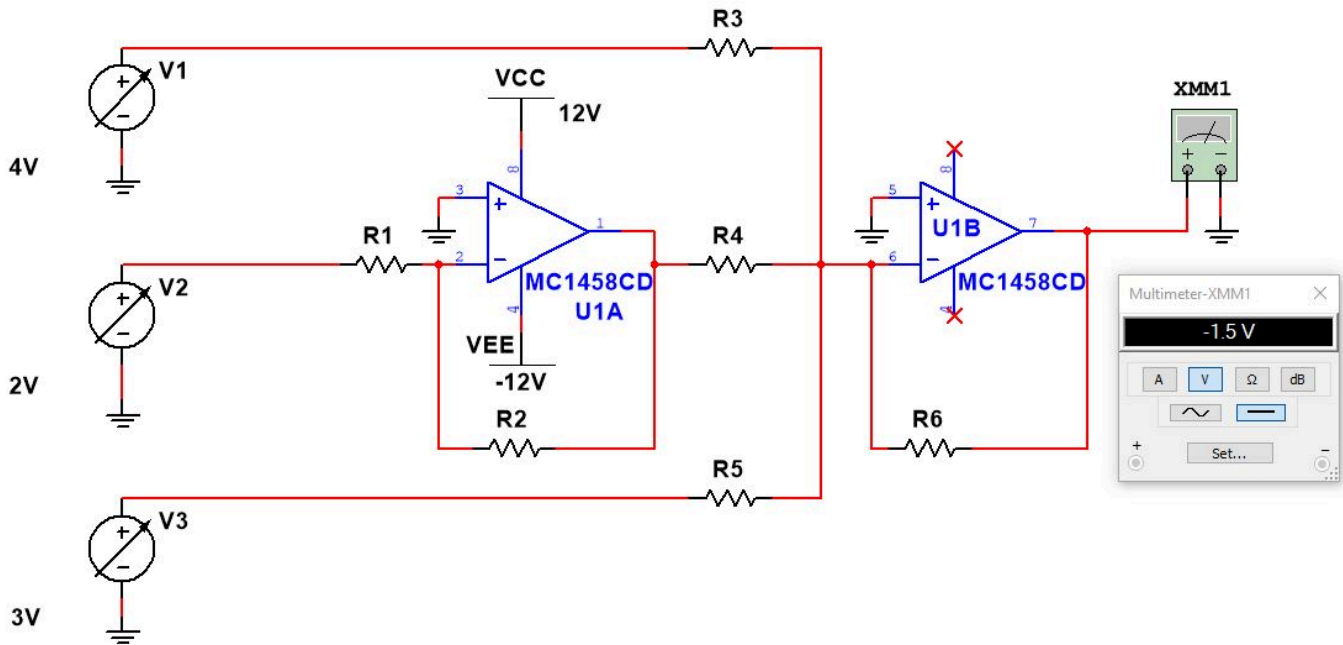


Here's a chance for you to do part of a summing amplifier design. This example is one of many "analog computer" circuits which has been designed to do a specific calculation based upon the inputs. Your task is to determine resistor values to generate the expected output. The mathematical expression is intended to be

$$w = -x + 2y - \frac{z}{2}$$

You can only use 10 kΩ and 20 kΩ resistors.



From the given input voltages and the resulting output, determine which voltage supply matches the variables in the expression:

2 z
 3 y
 1 x

1. V1
2. V3
3. V2

Now determine the values of each resistor:

R1 =

10 kΩ
 20 kΩ

R2 =

10 kΩ
 20 kΩ

R3 =

10 k Ω

20 k Ω

R4 =

10 k Ω

20 k Ω

R5 =

10 k Ω

20 k Ω

R6 =

10 k Ω

20 k Ω

Build the circuit with your chosen resistor values. Set up the three "DC_INTERACTIVE_VOLTAGE" sources with a Maximum of 5 V, a Minimum of -5 V, an Increment of 10%, and a Key matching the input variable (x, y, or z).

Verify that the circuit is working properly by filling in the following table. Round the output voltages to the nearest 0.1 V. The "Calculated" value is what you expect to get, determined using a calculator.

X, V	Y, V	Z, V	Vout, V	Calculated
4	2	3	-1.5	-1.5
-1	3	2	6	6
2	-2	-1	-5.5	-5.5