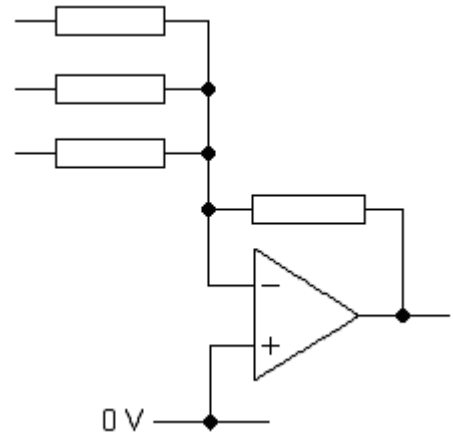


1 Here are some statements about the summing amplifier shown opposite. Which of them are correct?



It employs negative feedback.

The non-inverting input is a virtual earth.

All four resistors must be the same size.

The system can only process a.c. signals.

The resistors must be between 1 kΩ and 1 MΩ.

The amplifier can combine three different signals.

2 Complete the sentences for the summing amplifier above. Choose from these words.

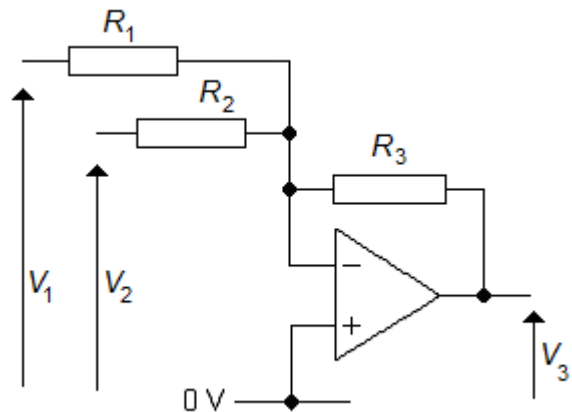
current feedback input negative output voltage

The _____ feedback ensures that the inverting input has a _____ of zero.

Each input signal sources _____ into its input resistor. Since there is no current in the op-amp inputs, the combined _____ currents pass into the _____ resistor. The voltage drop across the feedback resistor is the _____ signal.

3 Complete the table.

Remember that the output of the op-amp saturates at ±13 V.



R_1	R_2	R_3	V_1	V_2	V_3
12 kΩ	12 kΩ	24 kΩ	-3 V	+5 V	
33 kΩ	27 kΩ		+5 V	+4 V	-10 V
47 kΩ		5.6 kΩ	+10 V	+6 V	-3 V
21 kΩ	42 kΩ		+4 V	-4 V	-8 V
10 kΩ	100 kΩ	27 kΩ	-3 V		+9 V
22 kΩ		82 kΩ	-5 V	+3 V	+2 V