The input to the op-amp circuit shown below is composed of an ac and a dc part and is given by

$$v_g(t) = V_a \sin(\omega t) + V_{DC}$$

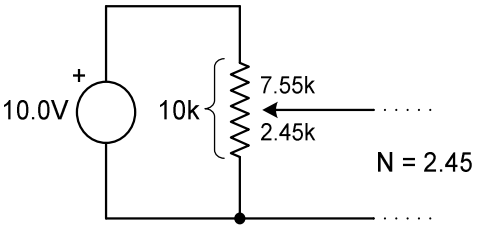
where the amplitude of the ac part is V_a volts and the dc component is V_{DC} Values of V_a and V_{DC} are given in the table at the end.
It is specified that that output of this circuit $V_o(t)$ should be composed of an ac component only such that

$$v_o(t) = -10\sin(\omega t)$$

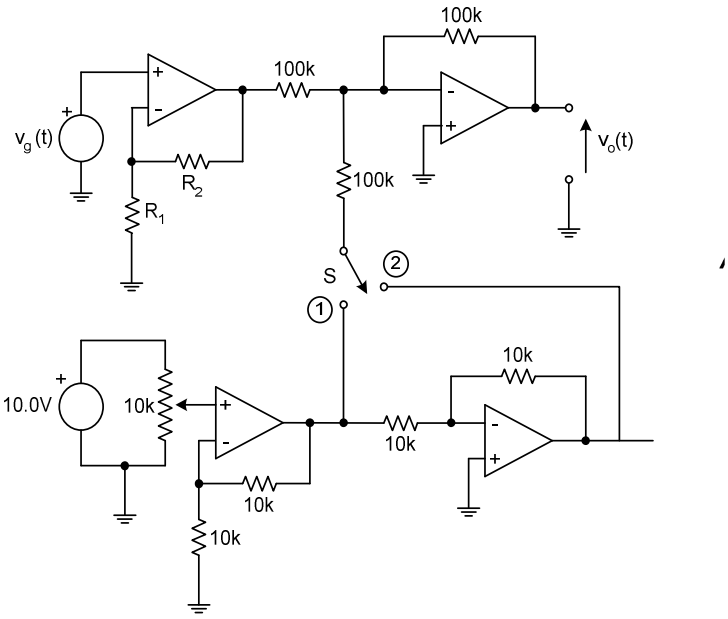
that is, a 10 volt amplitude sinewave.

It is your job to calculate the values of **R_2**, the **pot setting N**, and the **position of the switch** required to perform this task – the circuit is on the right, below (all op-amps are ideal).

The pot is of the 'ten turn' variety having a scale reading *N* between 0.00 and 10.00 which indicates the position of the slider. If N = 0.00 then the slider is at the lowest position. If N = 10.00 then the slider is at the top. If N = 2.45 for example then we would have the situation shown opposite:



Circuit is



Chose any set of values from the table below. You may wish to try more than one.

Choose any set of values below

Va/mV	**V_{DC}/m**	**R1/kΩ**	**R2/kΩ**	**N(0 to10)**	**S (1 or 2)**
100	60	1			
101	58	1.2			
102	56	1.5			
103	54	1.8			
104	52	2.2			
160	-60	4.7			
188	-116	6.8			

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