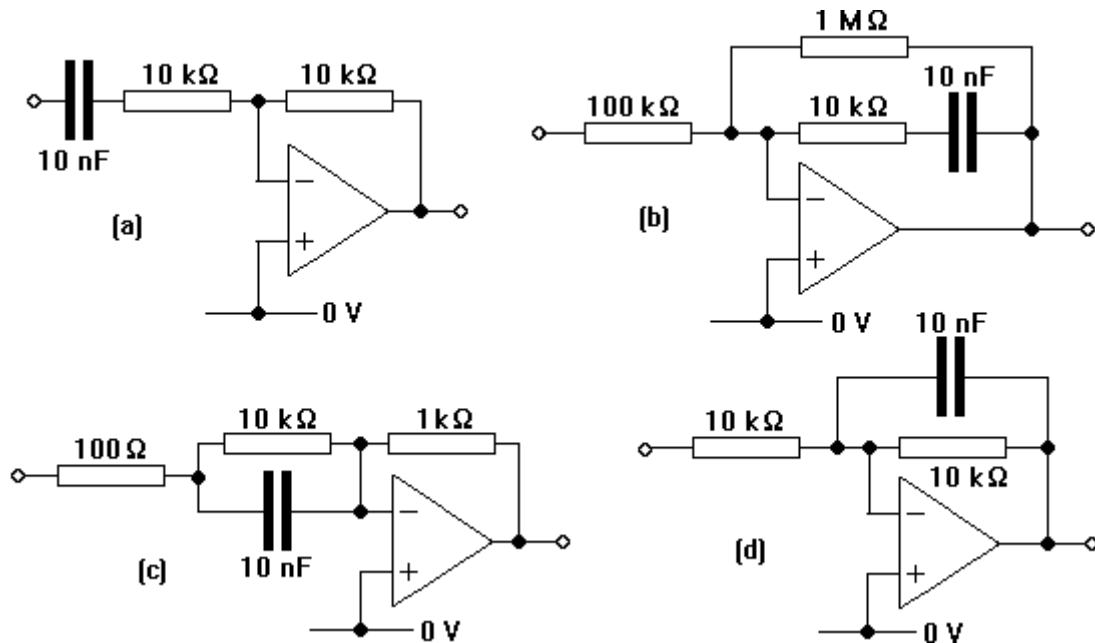


### Investigating active filters

You are going to measure the gain-frequency curves for the four active filter circuits shown below.



1. Calculate the break frequency of the first circuit.
2. Use the two-straight line approximation to draw the gain-frequency on log-log graph paper.
3. Assemble the circuit. Set up a double-beam CRO so that it can monitor the signals at the input and output of the filter. Trigger on the input signal.
4. Use a signal generator to inject a  $1.0\text{ V}$  peak signal at  $33\text{ kHz}$  into the filter. Measure the peak voltage at the output. Calculate the gain of the filter. It should be  $1.0$ .
5. Repeat step 4 for the following frequencies:  $10\text{ kHz}$ ,  $3.3\text{ kHz}$ ,  $1.0\text{ kHz}$ ,  $330\text{ Hz}$  and  $100\text{ Hz}$ .
6. Plot the six measured points on your log-log graph paper.
7. Repeat steps 1 to 6 for the three other filters in the diagram above.