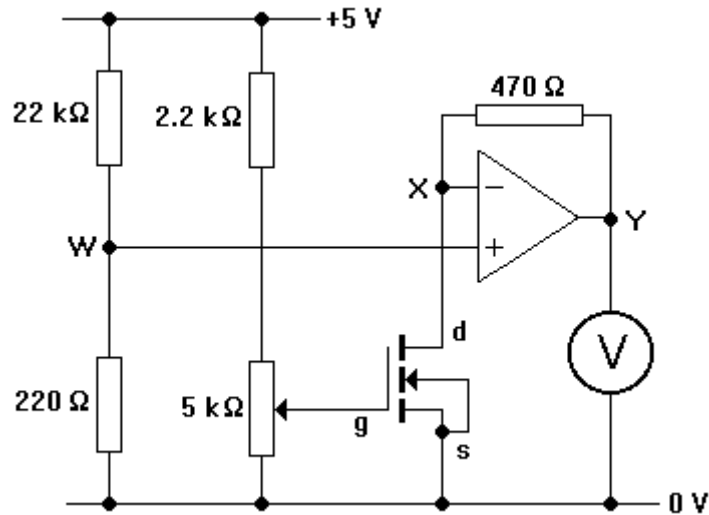


MOSFET resistors

You are going to find out how the drain-source resistance of a MOSFET depends on its gate-source voltage.

- 1 Assemble the circuit shown below. It uses a 2N7000 MOSFET as the pull-down resistor of a non-inverting amplifier.



- 2 Check that point W is at +50 mV. If all is well, the voltage at point Y should go from +50 mV to +3 V as the potentiometer is adjusted.
- 3 The gate voltage fixes the drain-source resistance R_{ds} of the MOSFET. Because of the negative feedback around the op-amp, X sits at a steady +50 mV and the voltage gain G of the op-amp circuit is given by $G = 1 + 470/R_{ds}$.
- 4 Measure the voltage at the gate V_{gs} required to obtain the op-amp output voltages V_y shown in the table.

V_y / V	V_{gs} / V	G	$R_{ds} /$
0.10			
0.20			
0.40			
0.80			
1.60			

- 5 Complete the table. Plot a graph to show how the drain-source resistance of the MOSFET depends on its gate-source voltage.