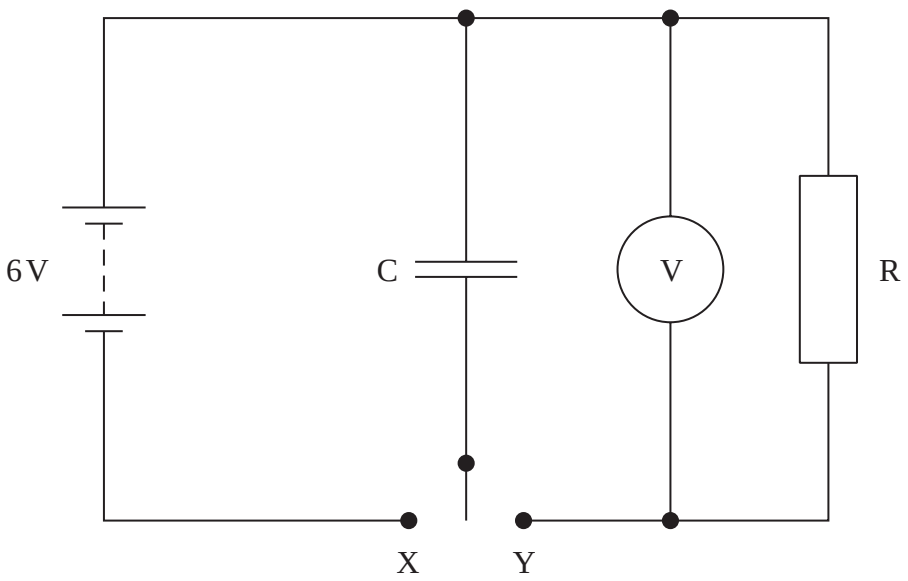
8 A student investigated the discharge of a capacitor C through a resistor R using the circuit shown.



The student used the switch to connect C to X to charge the capacitor. She then connected C to Y to discharge the capacitor through R.

As the capacitor discharged, she recorded values of the potential difference V across C and corresponding values of time t. She used a stopwatch to measure t.

The student used her results to plot the following graph.

(a) The capacitor was marked 220 μF ± 20%.

Deduce whether the student's data give a value of capacitance within the stated range.

$R = 82\,\text{k}\Omega$

(5)

(b) The student suggested that her results would have been more accurate if she had used a data logger to record the data.

Assess the student's suggestion.

(3)

(Total for Question 8 = 8 marks)