

# Edexcel Physics A-Level

## Topic 7.2 - Capacitors

### Flashcards

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# What does a capacitor do?



## What does a capacitor do?

Capacitors are used to store charge in a circuit.



What two factors determine how much charge can be stored by a capacitor?



What two factors determine how much charge can be stored by a capacitor?

1. The potential difference across it
2. The capacitance



# What is capacitance?



## What is capacitance?

Capacitance is a measure of how much charge can be stored by a capacitor per unit potential difference across it.



State the equation used to calculate the capacitance from the charge and potential difference.





State the equation used to calculate the capacitance from the charge and potential difference.

Capacitance = Charge / Potential  
Difference

$$C = Q/V$$



# What is the unit of capacitance?



# What is the unit of capacitance?

$$CV^{-1}$$



What is represented by the area under a capacitor's charge-potential graph?



What is represented by the area under a capacitor's charge-potential graph?

The energy stored by a capacitor.



What is represented by the gradient of a capacitor's charge-potential graph?



What is represented by the gradient of a capacitor's charge-potential graph?

Capacitance



Give three equations to calculate the energy stored by a capacitor.





Give three equations to calculate the energy stored by a capacitor.

$$W = \frac{1}{2}QV$$

$$W = \frac{1}{2}CV^2$$

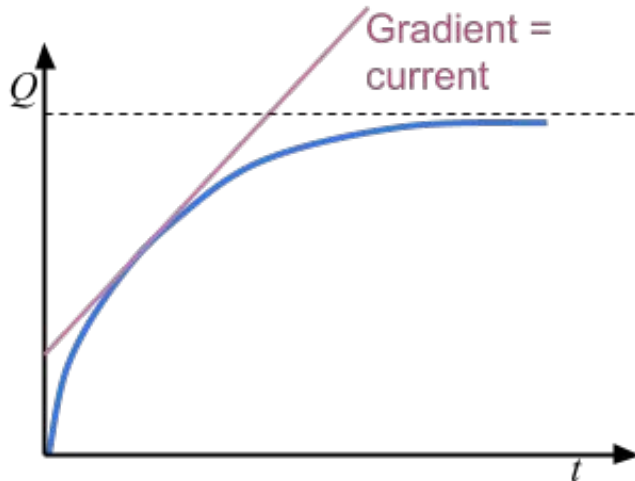
$$W = \frac{1}{2}Q^2/C$$



Describe a charge-time graph for charging a capacitor. What does the gradient represent?



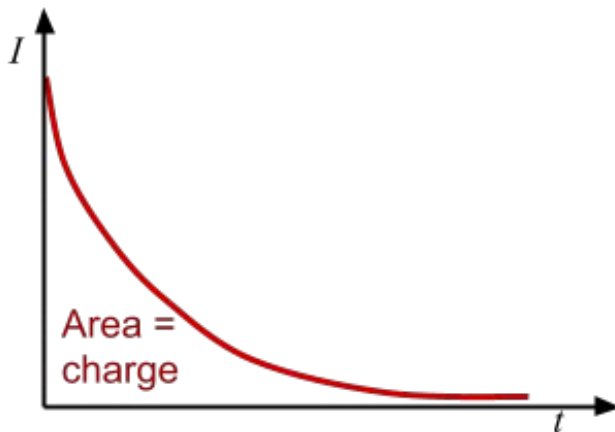
Describe a charge-time graph for charging a capacitor. What does the gradient represent?



Describe a current-time graph for charging a capacitor. What does the area represent?



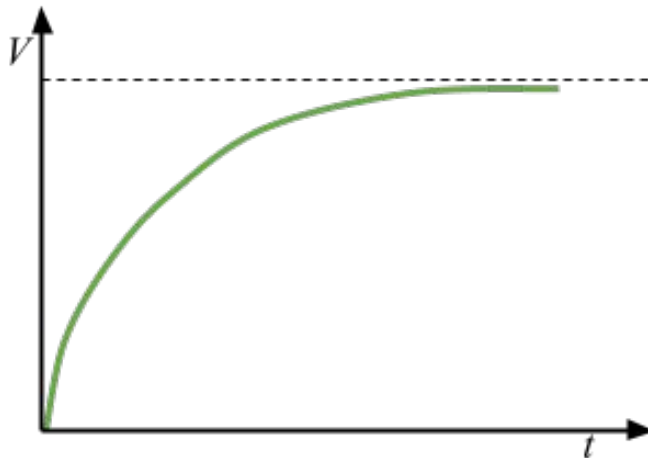
Describe a current-time graph for charging a capacitor. What does the area represent?



Describe a voltage-time graph for charging a capacitor.



Describe a voltage-time graph for charging a capacitor.



What value is given by the product of resistance and capacitance?





What value is given by the product of resistance and capacitance?

The time constant of the circuit.



What does the time constant of a circuit tell you?



What does the time constant of a circuit tell you?

The time the capacitor will take to reach 63% of its total charge, and the time taken for it to discharge to 37% of its full charge.

