

Edexcel Physics A-Level

Topic 7.1 - Electric Fields

Flashcards

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What is a force field?



What is a force field?

A region in which a non-contact force is experienced by an corresponding interacting particle.



What is an electric field?



What is an electric field?

A region in which a charged particle will experience a non-contact force.



What is electric field strength?



What is electric field strength?

The force per unit charge experienced by a charged particle when placed at that point in the field.



State the equation used to calculate the force a charge experiences in an electric field.



State the equation used to calculate the force a charge experiences in an electric field.

Force = Electric Field Strength x Charge

$$F = EQ$$



What law determines the magnitude of the electric force between two charges?



What law determines the magnitude of the electric force between two charges?

Coulomb's Law



State Coulomb's law in words.



State Coulomb's law in words.

The force between two charges is directly proportional to the product of their charges and inversely proportional to the square of their separation.



Give Coulomb's law in equation form.



Give Coulomb's law in equation form.

$$F = \frac{kQq}{r^2}$$

Where $k = \frac{1}{4\pi\epsilon_0}$

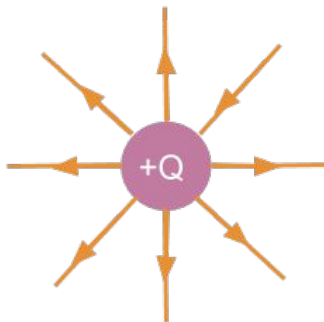


Describe the electric field pattern around a positive point charge.



Describe the electric field pattern around a positive point charge.

A radial field, acting outwards.

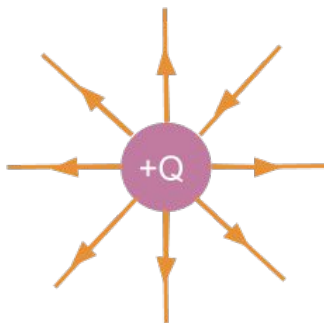


Describe the electric field pattern around a negative point charge.



Describe the electric field pattern around a negative point charge.

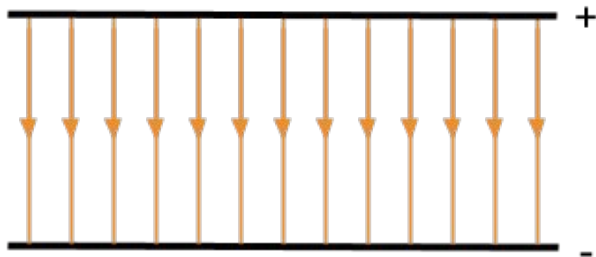
A radial field, acting inwards.



Describe the uniform electric field
between parallel plates.



Describe the uniform electric field between parallel plates.



What equation is used to calculate the electric field between parallel plates?



What equation is used to calculate the electric field between parallel plates?

$$E = V/d$$



What is electric potential?



What is electric potential?

The amount of energy required to move a positive test charge from infinity to a given point in an electric field.



How do you calculate electric potential
for a radial field?



How do you calculate electric potential for a radial field?

$$F = \frac{kQ}{r}$$

Where $k = \frac{1}{4\pi\epsilon_0}$



What are equipotentials?



What are equipotentials?

Equipotentials are lines along which the electric potential remains the same.



How do you calculate the work done in moving a charge along an equipotential?



How do you calculate the work done in moving a charge along an equipotential?

No work is done when moving a charge along an equipotential since the electric potential doesn't change.

