Electric Field Lines:~

Def:~

The imaginary path along which a free small test charge moves in an electric field.

Information:~

Electric field lines tells us about:~

(1.) **Direction** of Electric field
(2.) **Strength** of Electric field
(3.) **Electric force** exerted on a charge

Scientist:~

"**Michael Faraday**" proposed the idea of representation of electric field by electric field lines.

Keep in Mind!

- The no. of lines per unit area passing perpendicularly through an area is proportional to the magnitude of an electric field.
- Density of lines $\propto$ Electric field

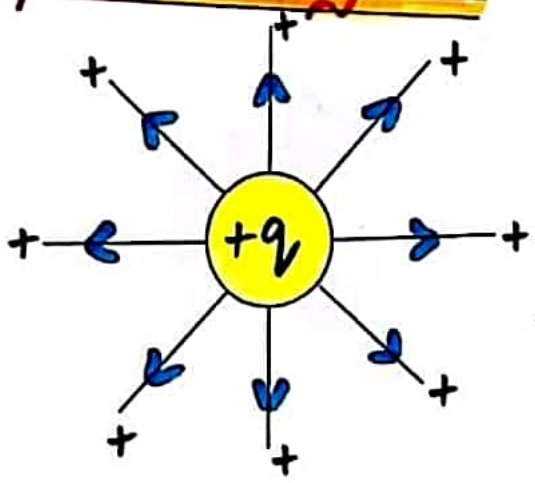
5 Cases:~

(1.) Electric field lines due to +ve point charge
(2.) Electric field lines due to -ve point charge
(3.) Electric field lines for two like charges
(4.) Electric field lines for two opposite charges
(5.) Electric field lines for two oppositely charged parallel plates

Professor:
Tehseen Talib
H.O.D Physics

ASPIRE GROUP OF COLLEGES

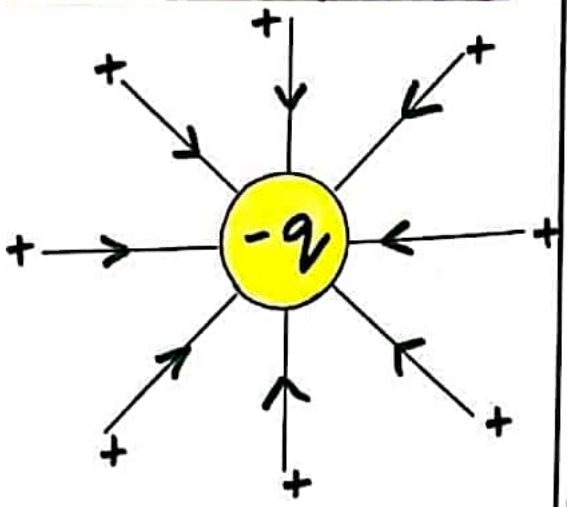
1. Electric field lines due to +ve point charge:~



Here:~

- Electric field lines created by +ve point charges +q are **repelled** by test "+ve" charge.
- That's why electric lines of forces are directed **radially outward.**
- It means we are moving **away** from test "+ve" charge So, distance "r" from test charge "increases."

2. Electric field lines due to -ve point charge:~



Here:~

- Electric field lines created by +ve point charges +q are **attracted** by test "-ve" charge.
- That's why electric lines of forces are directed **radially inward.**
- It means we are moving **towards** test "-ve" charge So, distance "r" from test charge "decreases."

P.T.O