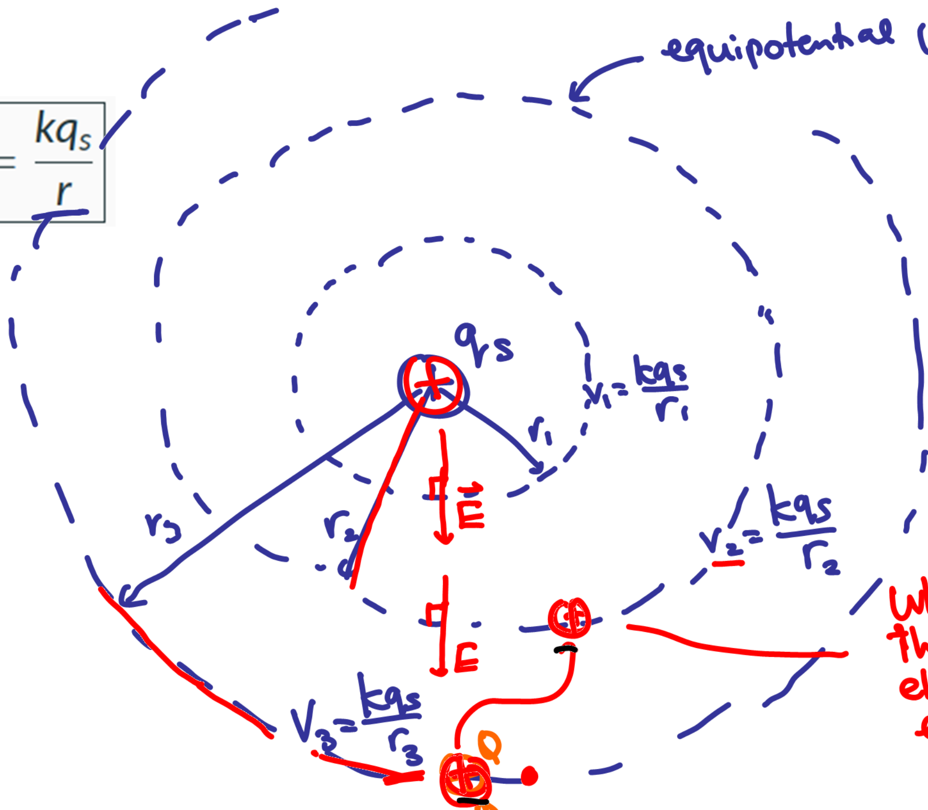
$$V = \frac{U_q}{q} = \frac{kq_s}{r}$$

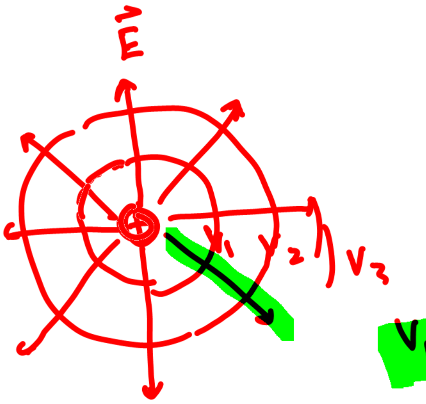



When I move Q to this location, the electric potential energy of the system changed to $\frac{kq_sQ}{r_2}$

↑ higher

When I put charg Q here, The two charge system will now have a potential energy of

$$U_q = V_3 Q = \frac{kq_sQ}{r_3}$$



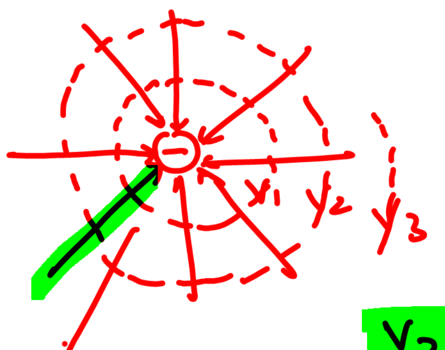

$V_1 > V_2 > V_3 > V_4$

$$\Delta V = \frac{\Delta U_q}{q}$$

$$\Delta U_q = (V_2 - V_3)Q = \Delta V Q$$

potential difference (voltage)

- Electric field lines are always ⊥ to The
- equipotential lines
- electric field always point from high potential V to low potential




$V_3 > V_2 > V_1$

$V = \frac{kq}{r} < 0$

JUST AS THERE IS A RELATIONSHIP BETWEEN ELECTROSTATIC FORCE AND ELELCTIC POTENTIAL ENERGY, THERE IS ALSO A RELATIONSHIP BETWEEN ELECTRIC FIELD AND ELECTRIC POTENTIAL