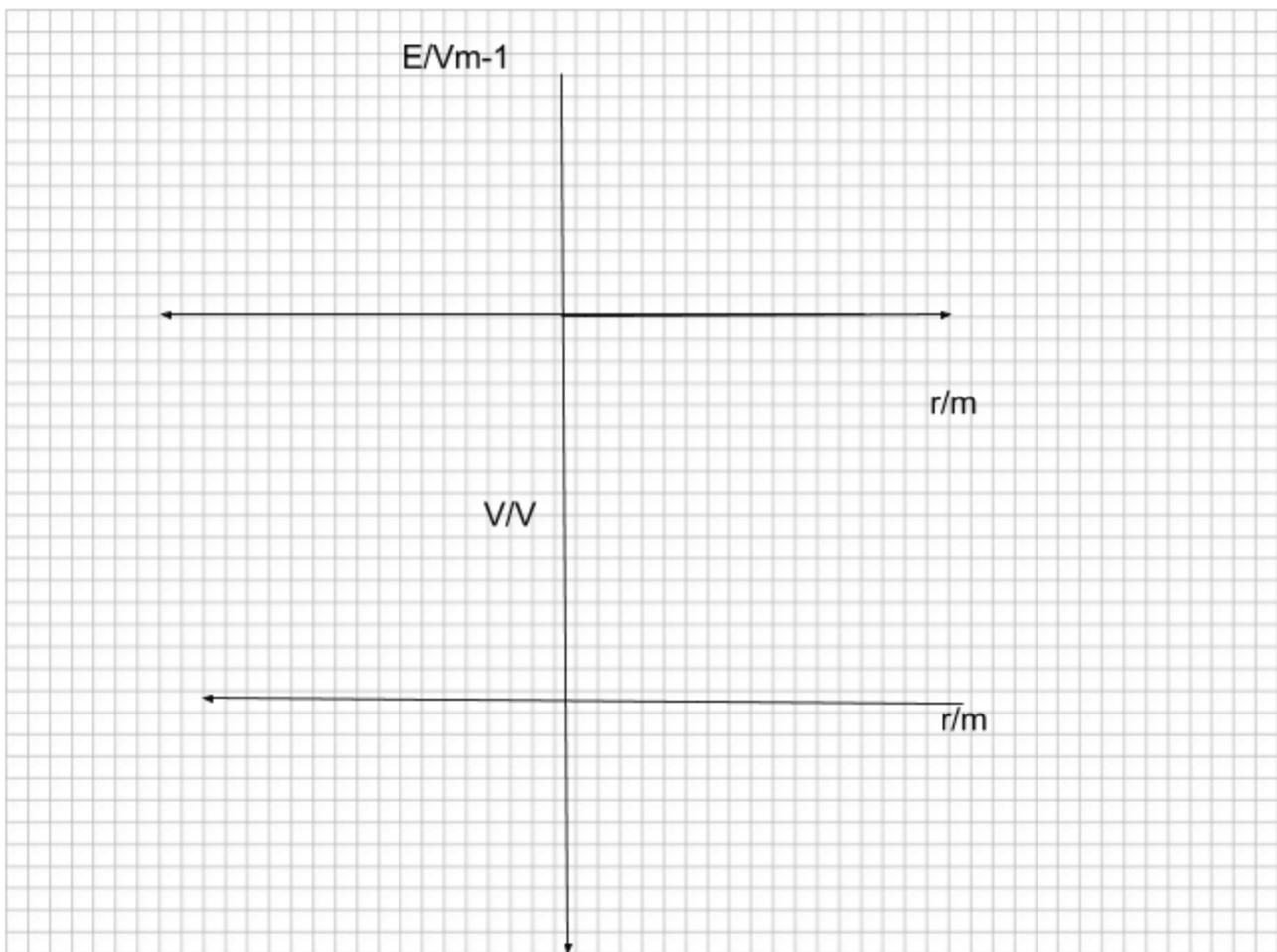


Investigating Field and potential around point charges using [Phet simulation](#)

1. Field and potential around a positive point charge

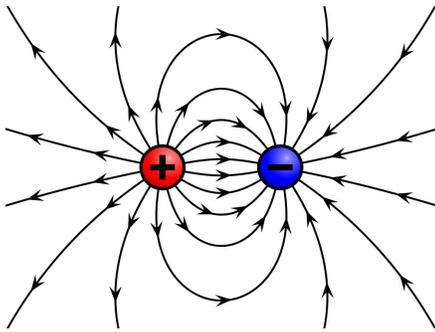
Predict how the electric field strength, E and the potential, V will vary with distance, r from the center of charge by completing the table. Verify your predictions by taking values in the simulation and sketch graphs to scale using the axes below - or your own graph in a spreadsheet.

r/m	1	2	3	4
E/Vm^{-1}				
V/V				



- How would values of force and potential be different for a negative charge of $-2nC$? Sketch graphs on the axes above and check your predictions in the simulation.
- Between parallel plates the electric field strength is given by the gradient of the potential -distance graph. Does this relationship hold for field and potential around a point charge? How can you test this ?

2. Electric field diagrams and equipotentials



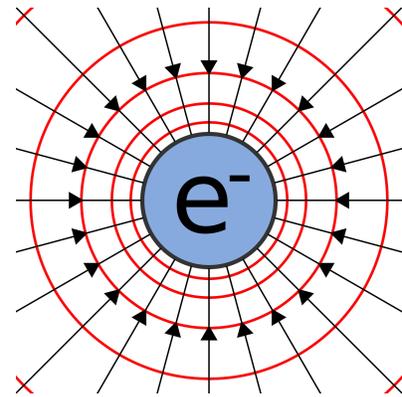
Electric field diagrams show the direction of electric force on a positive test charge.

Electric field lines are close together where the force is strong

Electric field lines never cross.

Equipotentials connect points of equal potential.

Equipotential lines are always at right angles to field lines. (Why ?)



Use the simulation to help you plot equipotentials around

- a positive charge,
- two positive charges
- any other charge configuration of your choice.

Show the values of potential and the field lines on your diagrams