

# PhyzJob: Electric Field Graphing



Make a data table, then plot the strength of the electric field vs. the distance from the spherical charges shown below. *Hint: the field is symmetrical around the charge and the sphere itself is a conductor.*

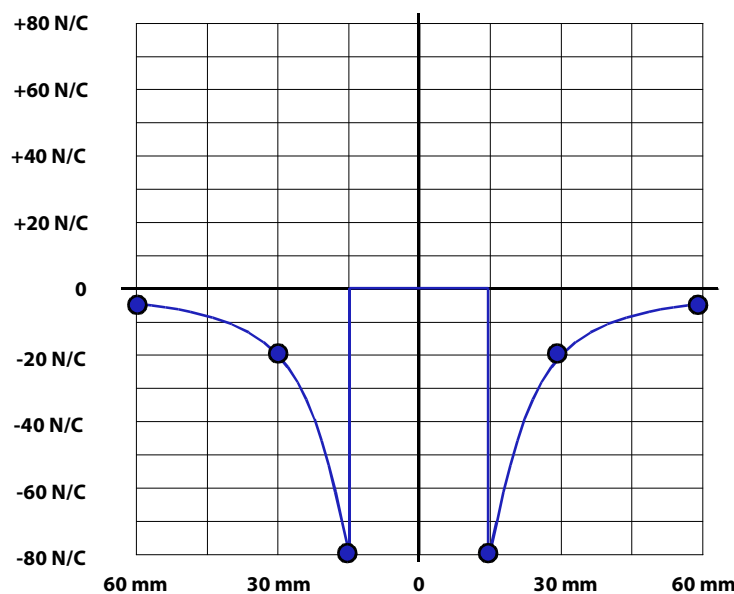
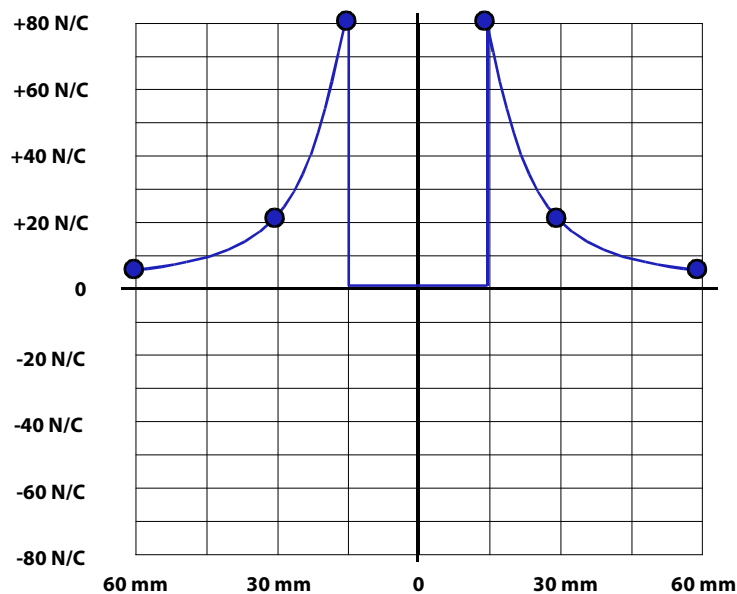
$d$ (mm)	$E$ (N/C)
15	+80
30	+20
60	+5

Equation you used to find E:  
 $E = kQ/d^2$

$Q = +2 \text{ pC}$   
 $R = 15 \text{ mm}$

$d$ (mm)	$E$ (N/C)
15	-80
30	-20
60	-5

$Q = -2 \text{ pC}$   
 $R = 15 \text{ mm}$



Suppose the graph represented a small track on which a marble could roll. If a marble were placed on the graph 30 mm away from the center of the charge and released, which way would it roll?

*Away from the charge.*

How does this compare to the motion of a free proton placed 30 mm from the center of the spherical charge?

*They correspond/agree.*

What would an electron placed 30 mm from the spherical charge do if released?

*Move away from the charge.*

Suppose the graph represented a small track on which a marble could roll. If a marble were placed on the graph 30 mm away from the center of the charge and released, which way would it roll?

*Toward the charge.*

How does this compare to the motion of a free proton placed 30 mm from the center of the spherical charge?

*They correspond/agree.*

What would an electron placed 30 mm from the spherical charge do if released?

*Move toward the charge.*