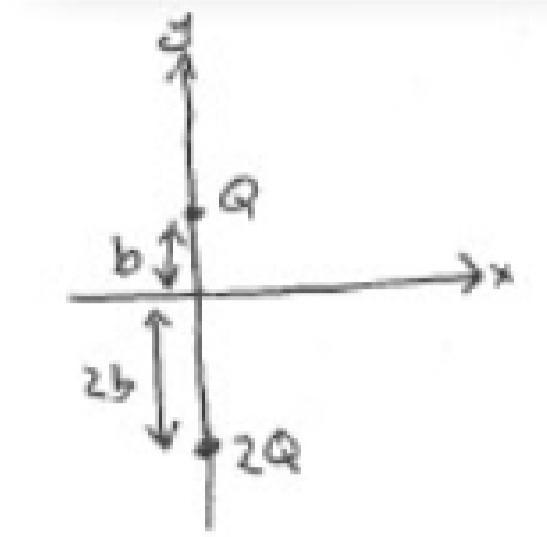


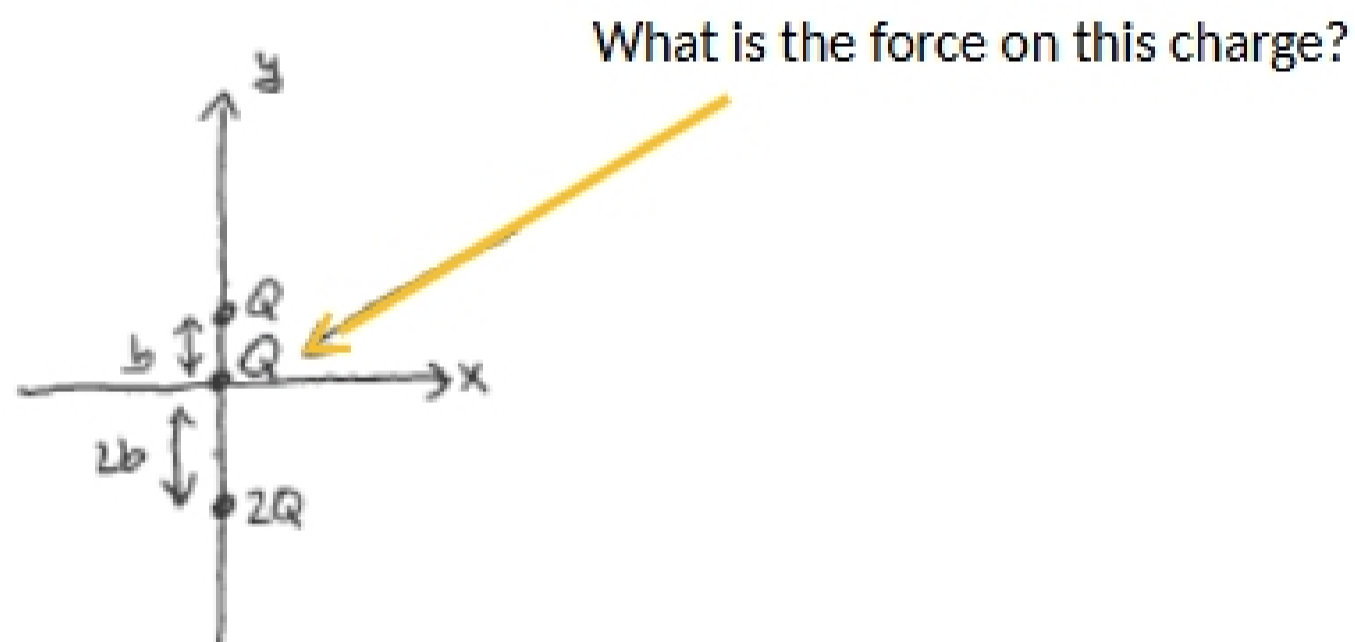
Topic #1: Coulomb's Law

16.1: Find magnitude & direction of force on charge Q



16.2: If $Q=10^{-6}\text{C}$ and $b=0.11\text{m}$, what is the magnitude & direction of force on the $2Q$ charge in problem 16.1?

16.3:



16.5: In a NaCl molecule, a Na^+ ion with charge e is $2.3 \times 10^{-10}\text{m}$ from a Cl^- ion with charge $-e$. What is the magnitude of the force between them?

16.6 A cell membrane is 10^{-8}m thick has positive ions on one side & negative ions on the other. What is the force between the two ions with charges of $+e$ and $-e$?

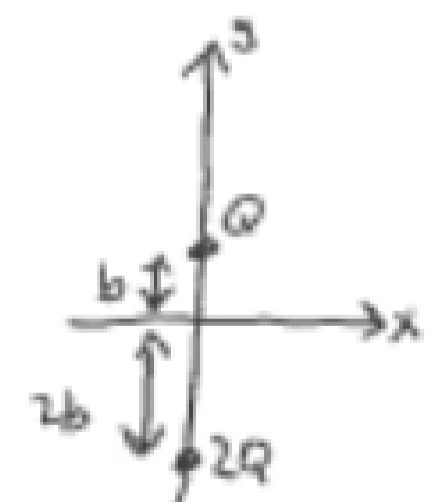
16.8: The distance between two charges is measured by a factor of 10. By what factor does the force change?

Topic #2: Electric Fields

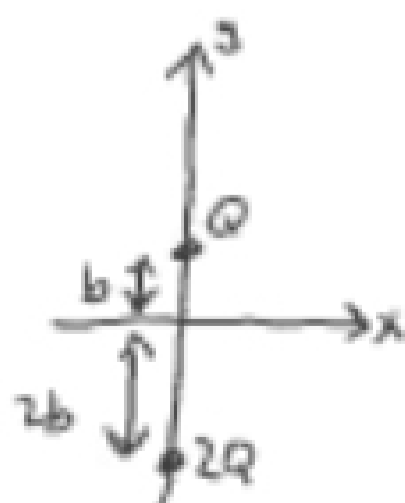
16.10: What is the force on an electron in a field of 10^3 N/C ?

16.11: An electron is accelerated at 10^8 m/s^2 by an electric field. What is the direction & magnitude of the field?

16.14: Find the electric field at $(0, -b)$



16.17:



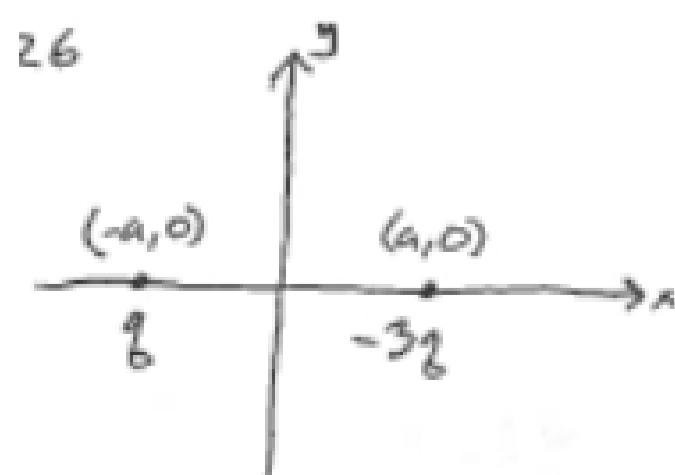
Find a point where $E=0$.

16.24 The electric field at a distance of 0.01m from a long straight wire is directed toward the wire and has a magnitude of 10^6N/C . What is the charge per unit length of the wire?

Topic #3: Electric Potential Energy

16.25: A carbon nucleus has a charge of $+6e$. At a distance of 10^{-10}m from a carbon nucleus, find (a) the electric potential; (b) the potential energy of an electron in electron volts and joules.

16.26:



What is the potential at (a) the origin; (b) $x=3a, y=0$? (c) At what points on x-axis is the potential 0?