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1. Two parallel metal plates are 0.50 cm apart and are connected to a 90-volt battery. Calculate the electric field between them.

18000 V/m

2. what is the electricity

9×10^6 V

3. The HCl molecule has a dipole moment of about 3.4×10^{-30} Cm. The two atoms are separated by about 1.0×10^{-10} m. Calculate the maximum torque that the dipole would experience in an electric field of intensity 2.5×10^4 N/C.

8.5×10^{-26} Nm

4. Two large horizontal, parallel metal plates are 2.0 cm apart in air and the upper plate is maintained at a positive potential relative to the lower plate so that field strength between them is 2.5×10^5 Vm⁻¹. An electron is released from rest at the lower plate. What is its speed on reaching the upper plate?

[$e = 1.6 \times 10^{-19}$ C; $m_e = 9.1 \times 10^{-31}$ kg]

4.2×10^7 m/s

5. 8.00 N/C

6. Which of the following correctly gives the electric field at a distance R above an infinitely long line of charge with constant linear charge density λ ?

$\frac{\lambda}{2\epsilon_0 R}$

7. A glass rod is rubbed against silk material acquires a charge of 0.6×10^{-4} C. How many electrons are transferred from the glass rod to the silk material?

[$e = 1.6 \times 10^{-19}$ C]

3.75×10^{12}

8. An electric field has a magnitude of 400 N/C and makes an angle 60° with the perpendicular to the surface of a flat surface of dimensions 30 cm by 20 cm. Calculate the electric flux through the surface.

$12 \text{ Nm}^2\text{C}^{-1}$

9. Calculate the magnitude of the repulsive force between a $+500 \times 10^{-4}$ C charge and a $+100 \times 10^{-4}$ C charge which are 5 m apart. [$k = 9 \times 10^9 \text{ Nm}^2\text{C}^{-1}$]

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10. Calculate the electric field at $x = 2$ given the electric potential at this point is $V = 3x^3$.

$-36i^{\wedge}$ N/C

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