

4B

1-24-14

- ① Review 1-22-14 lecture  
with supplementary  
comments to be posted
- ② new lecture notes of  
electric FIELDS

1-24-14

- 4B

supplementary

NOTES for 1-22-14:

velocity



$$\vec{F} = q (\vec{E} + \vec{v} \times \vec{B})$$

Force      Charge      Electric FIELD      Magnetic FIELD

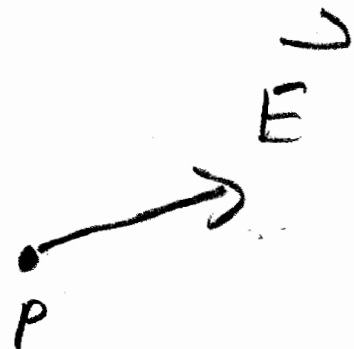
CHS 21-26:  $\vec{B} = 0$

$$\vec{F} = q \cdot \vec{E}$$

at rest

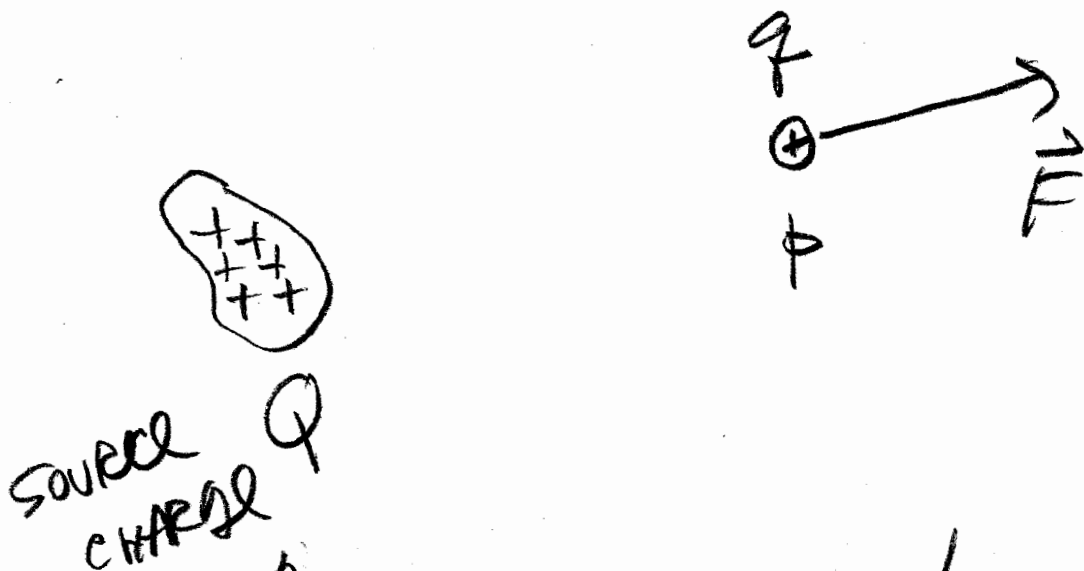


SOURCE CHARGE Q



ANY LOCATION point P.

1-22-14 supplements



Place charge  $q$  at point P:

$q$  EXPERIENCES FORCE

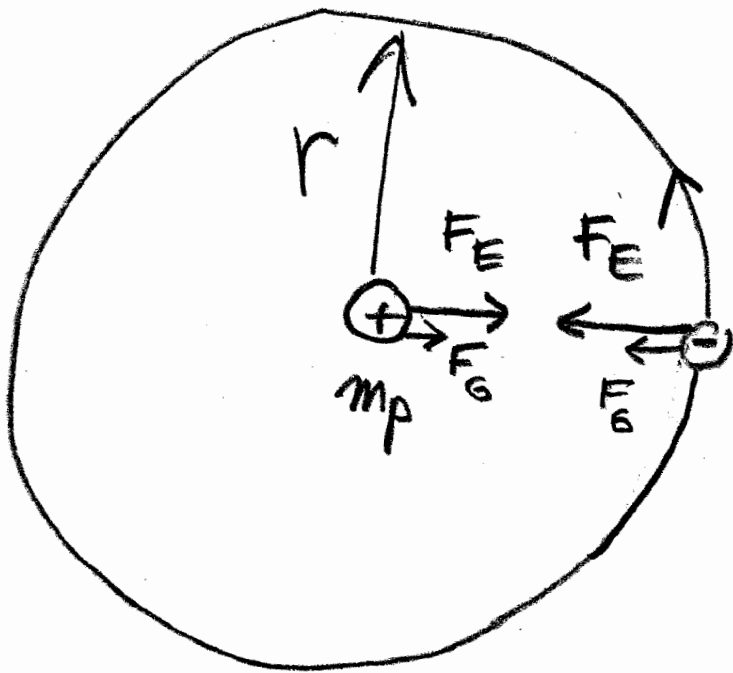
$$\vec{F} = q \cdot \vec{E}$$

note: a magnetic FIELD  $\vec{B}$   
at point P WOULD EXIST  
if CHARGE  $Q$  WAS  
MOVING. (CH 27)

supplements of 1-22-19  
lecture:

\*  $k = \frac{1}{4\pi\epsilon_0} \approx \frac{9 \times 10^9 \text{ N}\cdot\text{m}^2}{\text{C}^2}$

\* GRAVITY in hydrogen EXAMPLE



$$F_E = \frac{k e^2}{r^2}$$

$$F_G = \frac{G m_p m_e}{r^2}$$