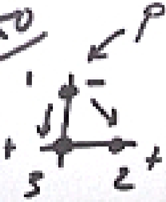
250



$L = .15$

$$\vec{F}_p = k q_p \sum_{\substack{i=1 \\ i \neq p}}^{n} \frac{\hat{r}_{ip}}{r_{ip}^2} q_i \cdot \frac{\vec{r}_{ip}}{r_{ip}^3}$$

$r_1, r_2, r_p, r_{2p}, r_{3p}$

$\vec{r}_p = \vec{r}_1 = 0\hat{x} + .15\hat{y}$

$\vec{r}_2 = .15\hat{x} + 0\hat{y}$

$\vec{r}_3 = 0\hat{x} + 0\hat{y}$

$\vec{r}_{2p} = \vec{r}_p - \vec{r}_2$

$= -.15\hat{x} + .15\hat{y}$

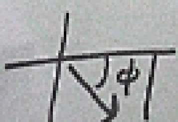
$\vec{r}_{3p} = \vec{r}_p - \vec{r}_3$

$= 0\hat{x} + .15\hat{y}$

$$\vec{F}_p = k(-9\mu) \quad \leftarrow .9(P790)$$

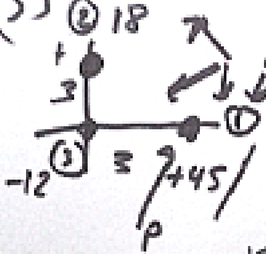
$$\left[(+8\mu)\left(\frac{-.15\hat{x}+.15\hat{y}}{(.15^2+.15^2)^{3/2}}\right)+ (3\mu)\left(\frac{0\hat{x}+.15\hat{y}}{(0^2+.15^2)^{3/2}}\right)\right]$$

$$\frac{8(-.15\hat{x})+8(.15)\hat{y}}{(\qquad)}$$



$$\tan\phi = \frac{F_y}{F_x}$$

(5)



$$\vec{F}_p = k q_p \sum \frac{q_i}{r_{ip}^2} \hat{r}_{ip}$$

r_{2p}, r_{3p}

$r_1 \quad r_2 \quad r_3$

$\bar{r}_1 = \bar{r}_p = 3\hat{x} + 0\hat{y}$

$r_2 = 0\hat{x} + 3\hat{y}$

$r_3 = 0\hat{x} + 0\hat{y}$

$r_{2p} = r_p - r_2$

$= 3\hat{x} + (0\hat{y} - 3\hat{y}) = 3\hat{x} - 3\hat{y}$

$$r_{3p} = r_p - r_3 = (3\hat{x} + 0\hat{y}) - (0\hat{x} + 0\hat{y}) = 3\hat{x} + 0\hat{y}$$

$$\vec{F}_p = k(45\mu)\left[(18\mu)\frac{3\hat{x} - 3\hat{y}}{\left[3^2 + 3^2\right]^{3/2}} + (-12\mu)\frac{3\hat{x} + 0\hat{y}}{\left[3^2 + 0^2\right]^{3/2}} \right]$$

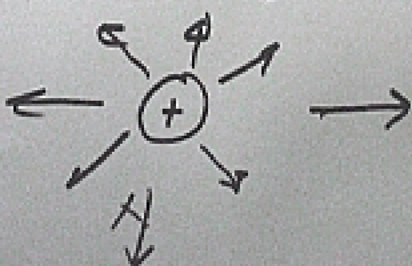
250
WSC

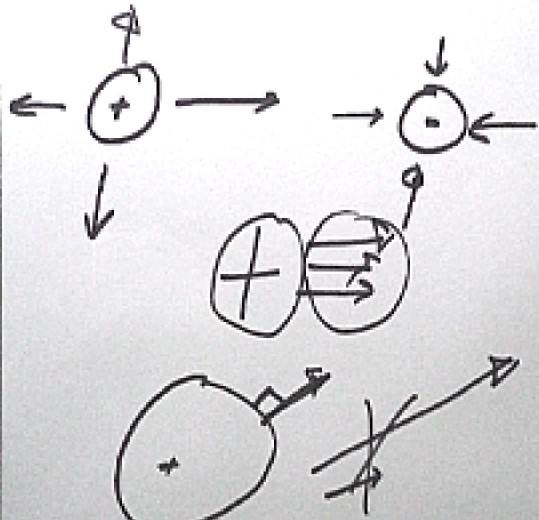
$$\vec{E} = \frac{\vec{F}}{q} \left[\frac{N}{C}\right]$$

$$\vec{E}_p = k \sum_{i=1}^{n} q_i \frac{\vec{r}_{ip}}{r_{ip}^2}$$

$$\vec{F}_p = q_p \vec{E}_p$$

Electric field

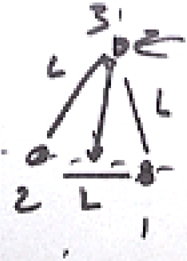




$$\vec{E}_p = k \int_{\text{all } q} \frac{dq_i}{r_{ip}^2} \hat{r}_{ip}$$

$$\vec{p} = \sum_{i=1}^{n} q_i \vec{r}_i$$

cartesian



$$L^2 = \left(\frac{L}{2}\right)^2 + y^2$$

$$y^2 = L^2 - \left(\frac{L}{2}\right)^2$$

$$= 4\left(\frac{L}{2}\right)^2 - \left(\frac{L}{2}\right)^2$$

$$= 3\left(\frac{L}{2}\right)^2$$

$$y = \sqrt{3}\,\frac{L}{2}$$

1: $\left(\frac{L}{2}, 0\right)$

2: $\left(-\frac{L}{2}, 0\right)$

3: $\left(0, \sqrt{3}\,\frac{L}{2}\right)$

$$\vec{r}_1 = \frac{L}{2}\hat{x} + 0\hat{y}$$

$$\vec{r}_2 = -\frac{L}{2}\hat{x} + 0\hat{y}$$

$$\vec{r}_3 = 0\hat{x} + \sqrt{3}\frac{L}{2}\hat{y}$$

$r_{21}, \ldots$ $\vec{E}_p =$