Test 1 2006

1. $$E_x = \frac{1}{4\pi\varepsilon_0}\frac{Q}{c(b-a)}\left(\frac{b}{\sqrt{b^2+c^2}} - \frac{a}{\sqrt{a^2+c^2}}\right)$$

$$E_y = \frac{1}{4\pi\varepsilon_0}\frac{Q}{b-a}\left(\frac{1}{\sqrt{b^2+c^2}} - \frac{1}{\sqrt{a^2+c^2}}\right)$$

2. $$F_x = \frac{1}{4\pi\varepsilon_0}\left[\frac{q_1 q_2 x_2}{\left(x_2^2+(y_2-y_1)^2\right)^{3/2}} + \frac{q_2 q_3 (x_3-x_2)}{\left((x_3-x_2)^2+(y_2-y_3)^2\right)^{3/2}}\right]$$

$$F_y = \frac{1}{4\pi\varepsilon_0}\left[\frac{q_1 q_2 (y_2-y_1)}{\left(x_2^2+(y_2-y_1)^2\right)^{3/2}} - \frac{q_2 q_3 (y_2-y_3)}{\left((x_3-x_2)^2+(y_2-y_3)^2\right)^{3/2}}\right]$$

3. $$Q = 4\pi\alpha\varepsilon_0 A^5$$

4. $$V = \frac{\rho}{3}\frac{Q}{\left((x-a)^2+(y-b)^2\right)^{3/2}} + C$$