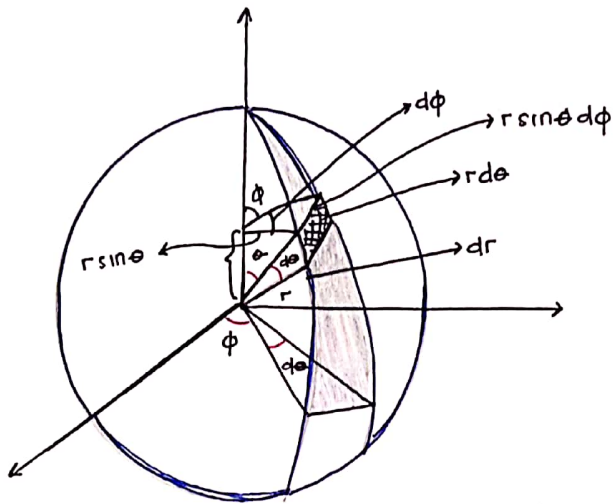


► Bola



$$A = P \times l$$

$$= P d\theta \cdot r \sin\theta d\phi$$

$$= r^2 \sin\theta d\theta d\phi$$

$$V = \int r^2 \sin\theta d\theta d\phi dr$$

$$A = \int_0^{2\pi} \int_0^\pi r \sin\theta d\theta d\phi = 4\pi r$$

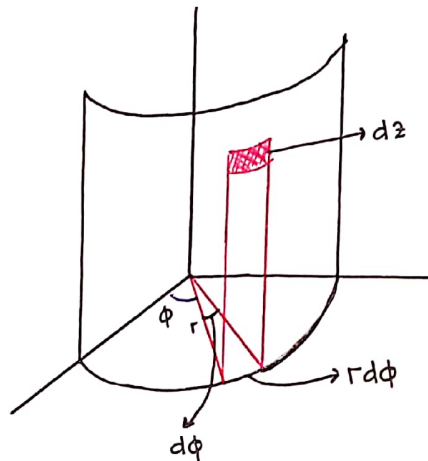
$$A = r^2 \int_0^{2\pi} \int_0^\pi \sin\theta d\theta d\phi$$

$$= 4\pi r^2$$

$$V = \int_0^r \int_0^{2\pi} \int_0^\pi r^2 \sin\theta d\theta d\phi dr$$

$$= \frac{4}{3}\pi r^3$$

► Silinder

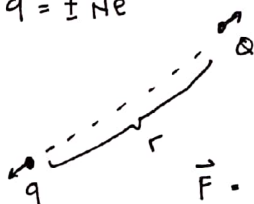


$$A = r d\phi dz$$

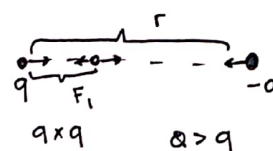
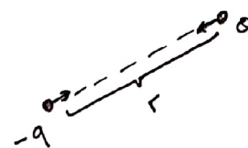
$$V = r d\phi dz dr$$

► Listrik statis

$$q = \pm Ne$$

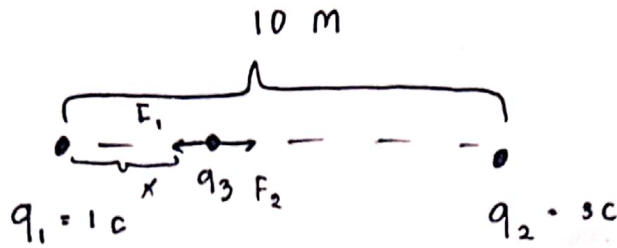


$$\vec{F} = \frac{1}{4\pi\epsilon_0} \frac{q \cdot Q}{r^2} \hat{r}_0$$



$$\vec{F}_1 = \vec{F}_2$$

$$K \frac{qQ}{(r-x)^2} = K \frac{qQ}{x^2}$$



$$q_3 = -2C$$

$$\cancel{k} \frac{q_1 q_3}{(1-x)^2} = \cancel{k} \frac{q_3 q_2}{x^2}$$

$$F_1 = F_2$$

$$k = \frac{q_1 q_3}{x^2} = k \frac{q_3 q_2}{(10-x)^2}$$

$$\cancel{k} = \frac{1 \cdot -2}{x^2} = \cancel{k} \frac{-2 \cdot 3}{(10-x)^2}$$

$$= \frac{1}{x^2} = \frac{3}{(10-x)^2}$$

$$= 3x^2 = (10-x)^2$$

$$3x^2 = 100 - x^2$$

$$10^2 = 3x^2 + x^2$$

$$10^2 = 4x^2$$

$$100 = 4x^2$$

$$x^2 = \frac{100}{4}$$

$$x^2 = 25$$

$$x = 5$$

$$\cancel{x} = \frac{1 \cdot \cancel{-2}}{x^2} \quad \cancel{x} = \frac{\cancel{2} \cdot 3}{(10-x)^2}$$

$$\cdot \frac{1}{x^2} \times \frac{3}{10-x^2}$$

$$3x^2 = (10-x)^2$$

$$3x^2 = x^2 + 20x - 100$$

$$2x^2 = 20x + 100 = 0$$

$$2x^2 - 20x = -100$$

$$b \pm \sqrt{\frac{b^2 - 4ac}{2a}}$$

$$20 \cancel{\neq} \pm \sqrt{\frac{20 \cancel{\neq}^2 \cdot 4(2 \cancel{\neq}^2 \cdot 100)}{2 \cdot 2 \cancel{\neq}^2}}$$

$$20 \pm \sqrt{\frac{20 \cancel{\neq}^2 \cdot 4(2 \cdot 100)}{\cancel{\neq} \cdot \cancel{\neq}}}$$

$$20 \pm \sqrt{400}$$

$$20 + 20$$

$$3x^2 = x^2 + 20x - 100$$

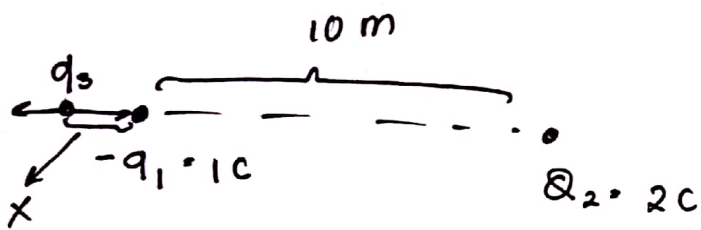
$$2x^2 = 20x - 100$$

$$x^2 = \frac{20x}{2} - \frac{100}{2}$$

$$x^2 = 10x - 50$$

$$x^2 - 10x - 50 = 0$$

$$(\quad) (\quad)$$



$$q_3 = 1C$$

$$\vec{F}_1 = \vec{F}_2$$

$$K = \frac{-1 \cdot 1}{x^2} - \frac{1 \cdot 2}{(10-x)^2}$$

$$= \frac{-1}{x^2} = \frac{2}{(10-x)^2}$$

$$= 2x^2 = (-10+x)^2$$

$$= 2x^2 = 100 - 20x + x^2$$

$$x^2 - 100 + 20x = 0$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$-100 \pm \sqrt{100^2 - 4(1 \cdot 20)}$$

$$\frac{20 \pm \sqrt{20^2 - 4(1 \cdot 100)}}{2 \cdot 1}$$

$$20 \pm \sqrt{200 - 400}$$

$$20 \pm \sqrt{400 - 400}$$

$$20 \pm \sqrt{4000}$$

$$\frac{-20 \pm \sqrt{100 - 20}}{2}$$

$$20 \pm 63,24$$