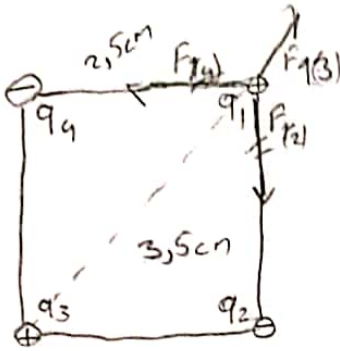


1st Page

①  $\vec{F} = k \cdot \frac{q_1 \cdot q_2}{r^2}$



$$q_1 = +4,53 \times 10^{-6} \text{ C} \quad q_2 = -5,53 \times 10^{-6} \text{ C}$$

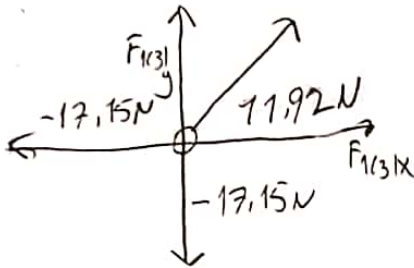
$$q_3 = +7,53 \times 10^{-6} \text{ C} \quad q_4 = -5,53 \times 10^{-6} \text{ C}$$

$\vec{F}_1$

$$F_{1(2)} = \frac{9 \cdot 10^9 \cdot (4,53 \cdot 10^{-6}) \cdot (-5,53 \cdot 10^{-6})}{(0,025)^2} = -17,15 \text{ N}$$

$$F_{1(4)} = 17,15 \text{ N}$$

$$F_{1(3)} = \frac{9 \cdot 10^9 \cdot (4,53 \cdot 10^{-6}) \cdot (7,53 \cdot 10^{-6})}{(0,035)^2} = 11,92 \text{ N}$$



$$F_{1(3)x} = F_{1(3)} \cdot \cos 45 = 11,92 \times \frac{\sqrt{2}}{2} = 8,43 \text{ N}$$

$$F_{1(3)y} = F_{1(3)} \cdot \sin 45 = 11,92 \times \frac{\sqrt{2}}{2} = 8,43 \text{ N}$$

$$\sum F_{netx} = 8,43 + (-17,15)$$

$$\sum F_{netx} = -8,72 \text{ N}$$

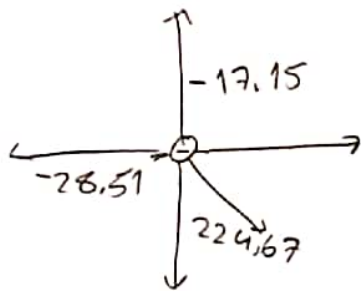
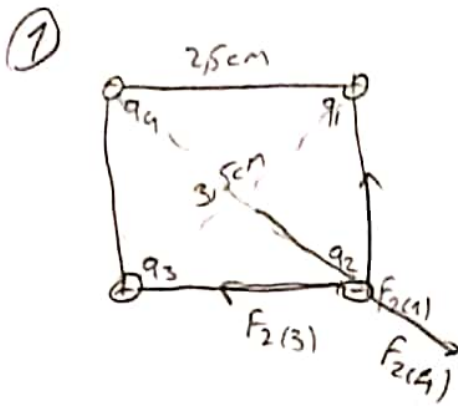
$$\sum F_{nety} = 8,43 + (-17,15)$$

$$\sum F_{nety} = -8,72 \text{ N}$$

$$|F_{net}| = \sqrt{(-8,72)^2 + (-8,72)^2}$$

$$F_{1net} = 67,32 \text{ N}$$

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$\vec{F}_2$

$$F_{2(1)} = \frac{9,10^9 (-5,53 \times 10^{-6}) \cdot (4,53 \times 10^{-6})}{(0,025)^2}$$

$$= -17,15 \text{ N}$$

$$F_{2(3)} = \frac{9,10^9 (-5,53 \times 10^{-6}) \cdot (7,53 \times 10^{-6})}{(0,025)^2}$$

$$= -28,51 \text{ N}$$

$$F_{2(4)} = \frac{9,10^9 (-5,53 \times 10^{-6}) \cdot (-5,53 \times 10^{-6})}{(0,035)^2}$$

$$= 10,68 \text{ N}$$

$$F_{2(4)x} = F_{2(4)} \cos 45 = 10,68 \times \frac{\sqrt{2}}{2} = 7,55 \text{ N}$$

$$F_{2(4)y} = F_{2(4)} \sin 45 = 10,68 \times \frac{\sqrt{2}}{2} = 7,55 \text{ N}$$

$$\sum F_{netx} = 158,87 + (-17,15) = -9,6 \text{ N}$$

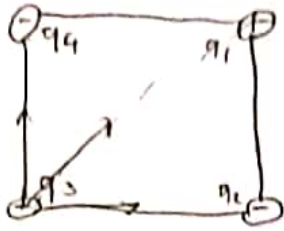
$$\sum F_{nety} = 158,87 + (-28,51) = -20,96 \text{ N}$$

$$|F_{net}| = \sqrt{(-9,6)^2 + (-20,96)^2}$$

$$F_{net} = 71,2 \text{ N}$$

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(1)

F<sub>3</sub>

$$F_{3(1)} = 9 \cdot 10^9 \cdot \frac{(7,53 \times 10^{-6}) \cdot (4,53 \times 10^{-6})}{(0,035)^2}$$

$$= 11,92 \text{ N}$$

$$F_{3(2)} = 9 \cdot 10^9 \cdot \frac{(7,53 \times 10^{-6}) \cdot (-5,53 \times 10^{-6})}{(0,025)^2}$$

$$= -28,51 \text{ N}$$

$$F_{3(4)} = -28,51 \text{ N}$$

$$F_{3(1)x} = F_{3(1)} \cdot \cos 45 = 11,92 \times \frac{\sqrt{2}}{2} = 8,43 \text{ N}$$

$$F_{3(1)y} = F_{3(1)} \cdot \sin 45 = 11,92 \times \frac{\sqrt{2}}{2} = 8,43 \text{ N}$$

$$F_{\text{Net}x} = 8,43 + (-28,51) = -20,08 \text{ N}$$

$$F_{\text{Net}y} = 8,43 + (-28,51) = -20,08 \text{ N}$$

$$|F_{\text{Net}}| = \sqrt{(-20,08)^2 + (-20,08)^2}$$

$$F_{3\text{Net}} = 383,13 \text{ N}$$

Altug Ege Sarı

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F<sub>41</sub>

$$F_{4(1)} = \frac{9 \cdot 10^9 (-5,53 \times 10^{-6}) \cdot (4,53 \times 10^{-6})}{(0,025)^2}$$

$$= -17,15 \text{ N}$$

$$F_{4(3)} = \frac{9 \cdot 10^9 (-5,53 \times 10^{-6}) \cdot (7,53 \times 10^{-6})}{(0,025)^2}$$

$$= -28,51 \text{ N}$$

$$F_{4(2)} = \frac{9 \cdot 10^9 (-5,53 \times 10^{-6}) \cdot (-5,53 \times 10^{-6})}{(0,035)^2}$$

$$= 10,68 \text{ N}$$

$$F_{4(2)x} = 7,55 \times \frac{\sqrt{2}}{2} = 7,55 \text{ N} \quad F_{4(2)y} = 7,55 \text{ N}$$

$$\sum F_{4(2)x} = 7,55 + (-17,15) = -9,6 \text{ N}$$

$$\sum F_{4(2)y} = 7,55 + (-28,51) = -20,96 \text{ N}$$

$$|F_{4(2)}| = \sqrt{(-9,6)^2 + (-20,96)^2}$$

$$F_{4(2)} = 21,2 \text{ N}$$

Atlg Ege Jaci

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*[Signature]*