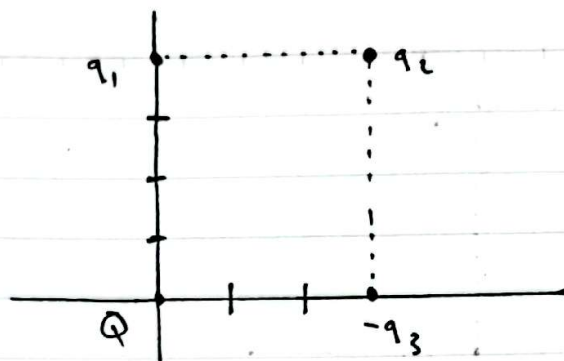
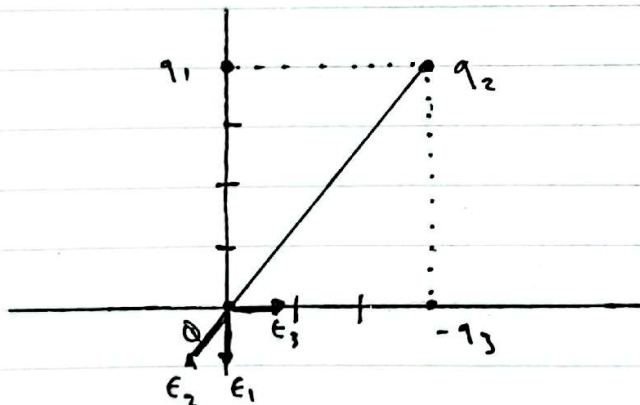




- Hitung Medan Listrik di titik $(0,0)$
- Hitung gaya listrik di titik $(0,0)$
- Hitung potensial listrik di titik $(0,0)$
- Hitung usaha Q Memindahkan ke 4 Muatan tersebut!

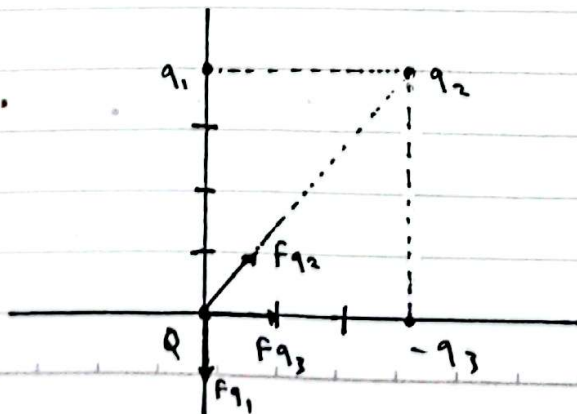
Jawab

a)



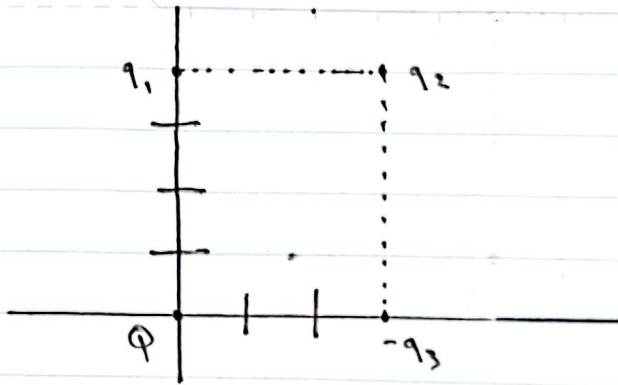
$$E_Q = K \left[\frac{q_1}{4^2} (-\hat{j}) + \frac{q_2}{3^2} (\hat{i}) + \frac{q_3}{5^2} \left(\frac{3\hat{i} - 4\hat{j}}{5} \right) \right]$$

b)



$$F_Q = KQ \left(\frac{q_1}{4^2} (-\hat{j}) + \frac{q_2}{3^2} (\hat{i}) + \frac{q_3}{5^2} \left(\frac{3\hat{i} - 4\hat{j}}{5} \right) \right)$$

c)



$$VQ = K \left[\frac{q_1}{4} - \frac{q_2}{5} + \frac{q_3}{3} \right]$$

d) $W_1 = 0$

$$W_2 = V_1 \cdot q_2$$

$$W_2 = K \frac{q_1}{3} \cdot q_2$$

$$W_3 = V_1 q_3 + V_2 q_3$$

$$= K \frac{q_1 q_3}{4\sqrt{2}} + K \frac{q_2 q_3}{4}$$

$$W_4 = V_1 q_4 + V_2 q_4 + V_3 q_4$$

$$= K q_1 q_4 + K \frac{q_2 q_4}{4\sqrt{2}} + K$$

$$= \frac{q_3 q_4}{3}$$