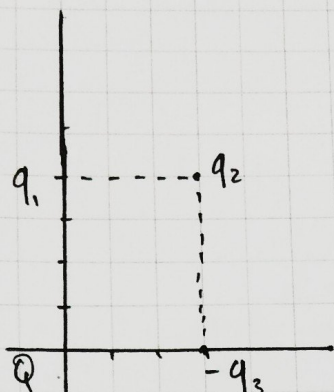


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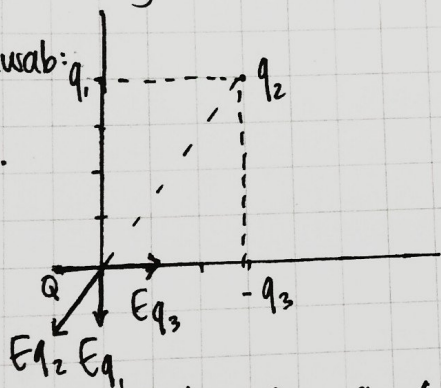
1.



- Hitung medan listrik di titik $(0,0)$
- Hitung gaya listrik di titik $(0,0)$
- Hitung potensial listrik di titik $(0,0)$
- Hitung usaha untuk memindahkan ke 4 muatan tsb!

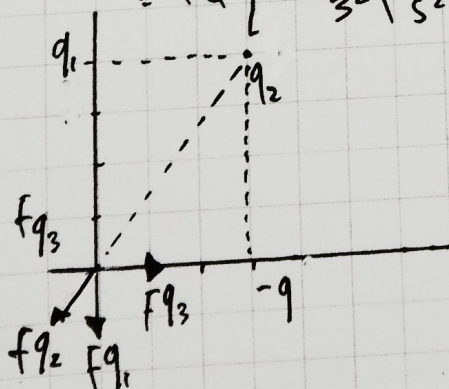
Jawab:

1. a).

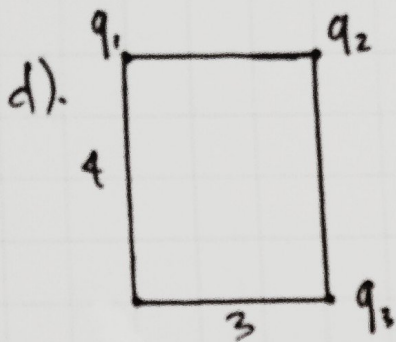


$$E_p = k \left[\frac{q_1}{4^2} (-\hat{j}) + \frac{q_2}{5^2} \left(\frac{-3\hat{i} - 4\hat{j}}{5} \right) + \frac{q_3}{3} (\hat{i}) \right]$$

$$\begin{aligned} \text{b). } F_Q &= kQ \left[\frac{q_1}{4^2} (-\hat{j}) + \frac{q_2}{5^2} \left(\frac{-3\hat{i} - 4\hat{j}}{5} \right) + \frac{q_3}{3^2} (\hat{i}) \right] \\ &= kQ \left[\hat{i} \frac{q_3}{3^2} \left(\frac{q_2}{5^2} - \frac{3}{5} \right) - \hat{j} \frac{q_1}{4^2} \left(\frac{q_2}{5^2} - \frac{4}{5} \right) \right] \end{aligned}$$



c). $V_p = k \left[\frac{q_1}{4} + \frac{q_2}{5} - \frac{q_3}{3} \right]$



$$\begin{aligned} WQ &= V_1 Q + V_2 Q + V_3 Q \\ &= k \frac{q_1 Q}{4} + k \frac{q_2 Q}{5} + k \frac{q_3 Q}{3} \end{aligned}$$