Nama : Cantika Putri Arda
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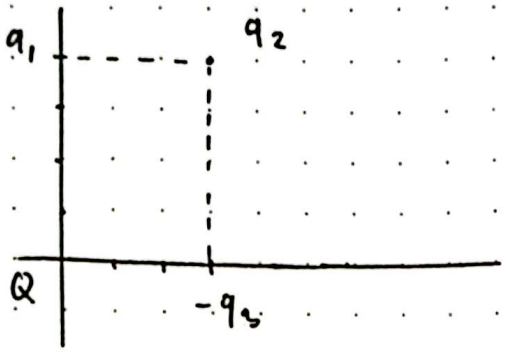
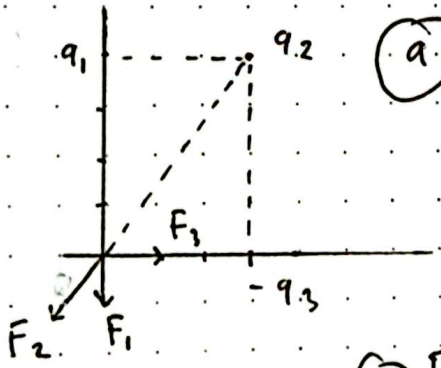


a). Hitung medan listrik di titik (0,0)
b). —11— gaya listrik di titik (0,0)
c). —11— potensial listrik di titik (0,0).
d). —11— usaha Q memindahkan ke 4 muatan tsb!

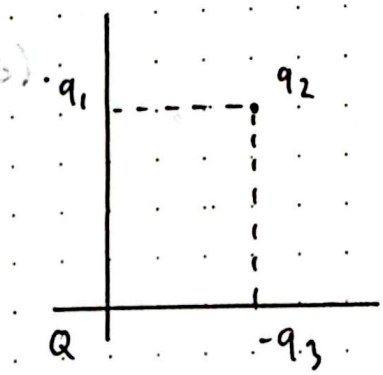
Jawab :



(a) $E_{(0,0)} = F_{q_1} + F_{q_2} + F_{q_3}$

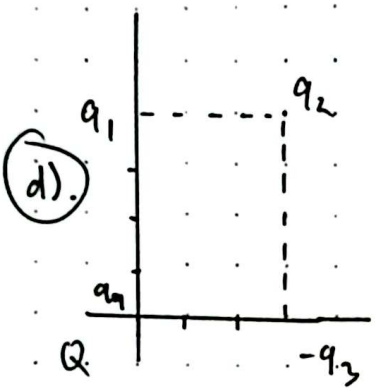
$= k \left[\frac{q_1}{4^2}(-\hat{j}) + \frac{q_2}{5^2}\left(\frac{-3\hat{i}+4\hat{j}}{5}\right) + \frac{q_3}{3^2}(\hat{i}) \right]$

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



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

d).



$W_1 = 0$

$W_2 = V_1 \cdot q_2$

$= k\frac{q_1 q_2}{3}$

$W_3 = V_1 \cdot q_3 + V_2 \cdot q_3$

$= k\frac{q_1 \cdot q_3}{5} + k\frac{q_2 q_3}{4}$

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

$= k\frac{q_1 q_4}{4} + k\frac{q_2 q_4}{5} + k\frac{q_3 q_4}{3}$

$W_{total} = W_1 + W_2 + W_3 + W_4$

$= 0 + \left(k\frac{q_1 q_2}{3}\right) + \left(k\frac{q_1 q_3}{5} + k\frac{q_2 q_3}{4}\right) +$

$\left(k\frac{q_1 q_4}{4} + k\frac{q_2 q_4}{5} + k\frac{q_3 q_4}{3}\right)$