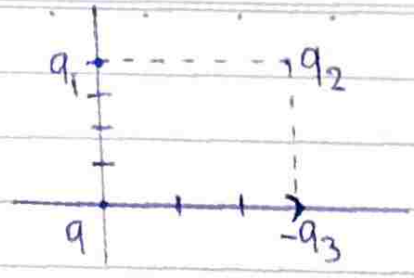
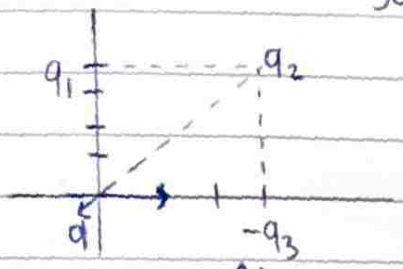


a. Hitung medan listrik di titik (0,0)
b. Hitung gaya listrik di titik (0,0)
c. Hitung potensial listrik di titik (0,0)
d. Hitung usaha u memindahkan ke 4 muatan tersebut!

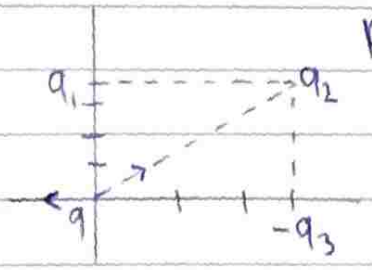
Jawab

a.



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

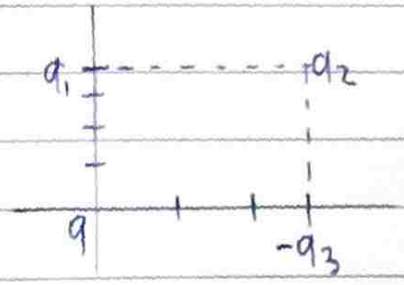
b.



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

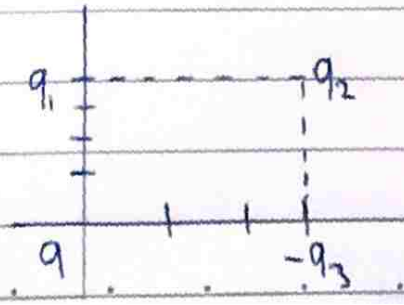
$$kQ\left(\hat{i}\left(\frac{q_3}{3^2}\right) - \left(\frac{q_2}{5^2}\,\frac{3}{5}\right)+\hat{j}\right)\left(\frac{q_3}{3^2} + \frac{q_1}{4^2}\left(\frac{4}{5}\right)\right)$$

c.



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

d.



$$W_1 = 0$$

$$W_2 = V_1 \cdot q_2$$

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

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

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

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

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