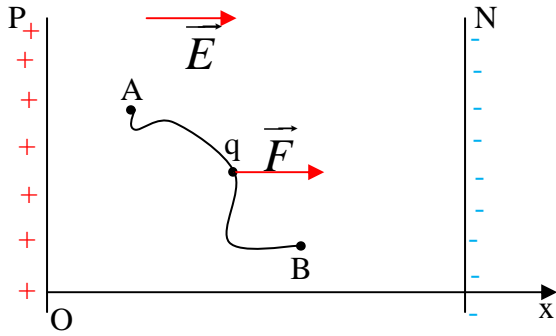


## حل التمرين 01



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.1

$$\begin{aligned} W_{AB} &= q \vec{E} \cdot \vec{AB} \\ &= qE \vec{i} \cdot ((x_B - x_A)\vec{i} + (y_B - y_A)\vec{j}) \\ &= qE(x_B - x_A) \end{aligned}$$

$$W_{AB} = 10^{-12} \frac{10^3}{5.10^{-2}} \times 2.10^{-2} = 4.10^{-10} J \quad \text{تطبيق عددي :}$$

$$W_{AB} = -q(V_B - V_A) \Rightarrow V_B - V_A = -\frac{W_{AB}}{q}$$

$$V_B - V_A = -\frac{4.10^{-10}}{10^{-12}} = -400V \quad \text{تطبيق عددي :}$$

.2

$$Ep_e = qV + Cte$$

$$V = V_N \Rightarrow Ep_e = 0 \Rightarrow Cte = -qV_N$$

$$\Rightarrow Ep_e = qV - qV_N \Rightarrow Ep_e = q(V - V_N)$$

$$Ep_e(A) = q(V_A - V_N)$$

$$= q \vec{E} \cdot \vec{AN} = q \frac{U}{d} \times AN$$

$$Ep_e(A) = 10^{-12} \frac{10^3}{5.10^{-2}} \times 4.10^{-2} = 8.10^{-10} J \quad \text{تطبيق عددي :}$$

$$Ep_e(B) = q(V_B - V_N)$$

$$= q \vec{E} \cdot \vec{BN} = q \frac{U}{d} \times BN$$

$$Ep_e(B) = 10^{-12} \frac{10^3}{5.10^{-2}} \times 2.10^{-2} = 4.10^{-10} J \quad \text{تطبيق عددي :}$$

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