



ИСПИТ ИЗ ОСНОВА ЕЛЕКТРОТЕХНИКЕ 1

01. 10. 2019. - Рјешења

1.

a)
$$\vec{E}_A = \frac{q_2}{2\pi\epsilon_0 a} \vec{i}_y + \left(\frac{q_1\sqrt{2}}{8\epsilon_0 a} - \frac{q_2}{2\pi\epsilon_0 a} \right) \vec{i}_z,$$

б)
$$q_2 = 6,28 \frac{\text{nC}}{\text{m}},$$

в)
$$|\vec{E}_A| = 1,13 \frac{\text{kV}}{\text{m}}.$$

2.

a)
$$E = \left\{ \begin{array}{l} 0, r < a \\ \frac{q'}{2\pi\epsilon_0 r}, a \leq r \leq b \\ 0, b < r < c \\ \frac{q'}{2\pi\epsilon_0 r}, c \leq r \leq d \\ 0, r > d \end{array} \right\},$$

б) $d = 10 \text{ mm}.$

3.

a) $E_1 = 40 \text{ V}, \quad E_2 = 20 \text{ V},$

б) $I'_A = 4 \text{ A}, \quad U'_V = 50 \text{ V},$

в) $P_X = 20 \text{ W}, \quad P_X = 0.$

4.

$R = 20 \Omega.$