32. Odredite smjer naboja i mase čestice koja gibajući se iz točke u kojoj potencijal iznosi 6000 V u točku s potencijalom 3400 V postiže brzinu od $5\cdot10^5$ m/s. Početna brzina čestice je nula.

A. $1.7\cdot10^{11}$ C/kg B. $2.1\cdot10^{-8}$ C/kg C. 10^{-8} C/kg D. $9.6\cdot10^7$ C/kg
E. $4.8\cdot10^7$ C/kg

$$\left.\begin{aligned}\varphi_1 &= 6000\ \text{V}\\ \varphi_2 &= 3400\ \text{V}\end{aligned}\right\} \begin{aligned}\triangle\varphi &= \varphi_1 - \varphi_2 = 6000\ \text{V} - 3400\ \text{V} = 2600\text{V}\\ \triangle\varphi &= U = 2600\text{V} = 2{,}6\cdot10^3\ \text{V}\end{aligned}$$

$$v = 5\cdot10^5\ \text{m/s}$$

$$v_0 = 0\,\text{m/s}$$

$$\frac{Q}{m} = ?$$

$$\left.\begin{aligned}W &= Q\cdot U\\ W &= E_k = \frac{mv^2}{2}\end{aligned}\right\} \qquad \begin{aligned}W &= E_k\\ Q\cdot U &= \frac{mv^2}{2} \quad /\cdot 2\\ 2Q\cdot U &= mv^2\\ \frac{Q}{m} &= \frac{v^2}{2\cdot U}\end{aligned}$$

$$\frac{Q}{m} = \frac{v^2}{2\cdot U} = \frac{\left(5\cdot10^5\ \text{m/s}\right)^2}{2\cdot2{,}6\cdot10^3\ \text{V}} = \frac{25\cdot10^{10}\ \text{m}^2/\text{s}^2}{5{,}2\cdot10^3\ \text{V}} = 4{,}8\cdot10^7\ \text{C/kg}$$