Toblamek siedzący na kuli

$$dW = \frac{1}{4\pi\varepsilon_0} \frac{q}{r} \, dq \quad \leftarrow \text{Toblamek rzucany z nieskończoności}$$

$$q = \frac{4}{3}\pi r^3 \rho$$

$$dq = 4\pi r^2 \rho \, dr$$

$$dW = \frac{1}{4\pi\varepsilon_0} \frac{1}{r} \left(\frac{4}{3}\pi r^3 \rho\right)\left(4\pi r^2 \rho\right) dr = \frac{4\pi \rho^2}{3\varepsilon_0} r^4 \, dr$$

$$W = \frac{4\pi\rho^2}{3\varepsilon_0} \int_0^R r^4 \, dr = \frac{4}{15}\frac{\pi\rho^2}{\varepsilon_0} R^5 = \frac{3}{5} \cdot \frac{1}{4\pi\varepsilon_0} \frac{Q^2}{R}$$

$$Q = \frac{4}{3}\pi R^3 \rho$$