

N2.116

Dane:

L

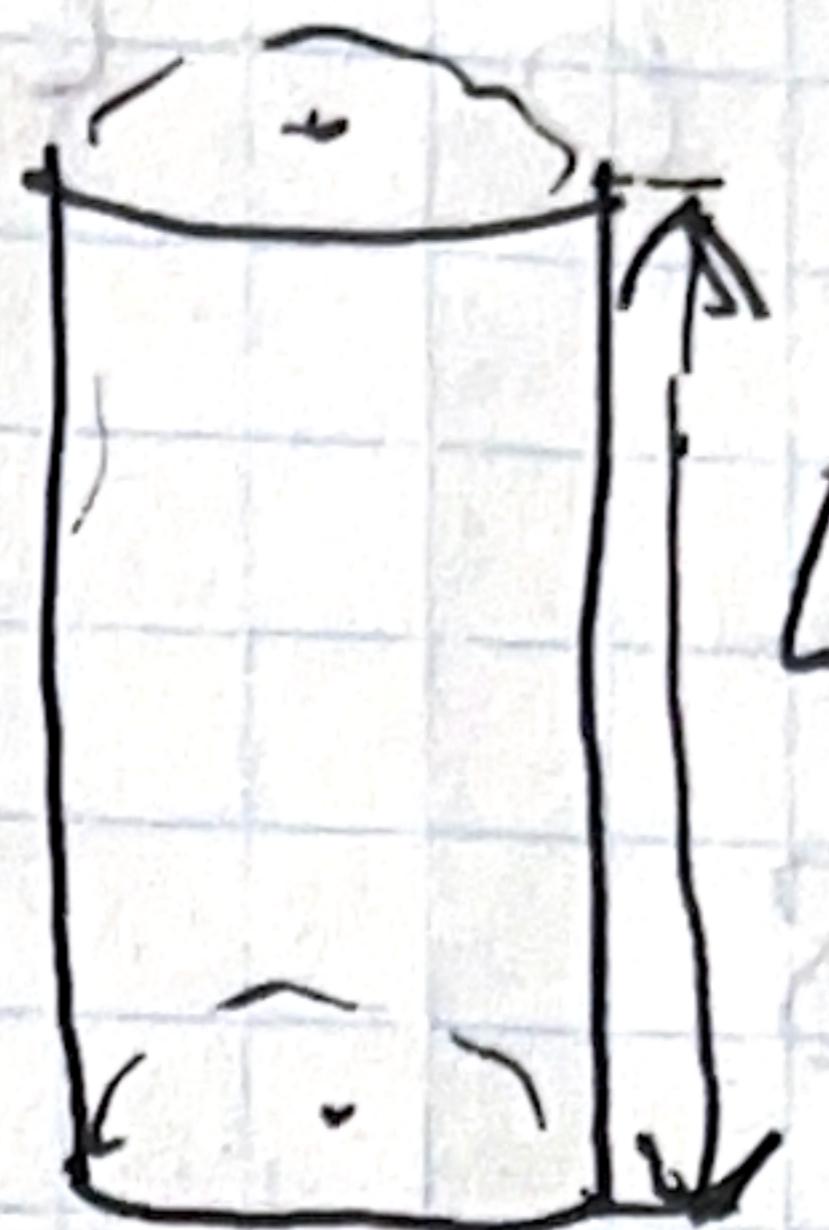
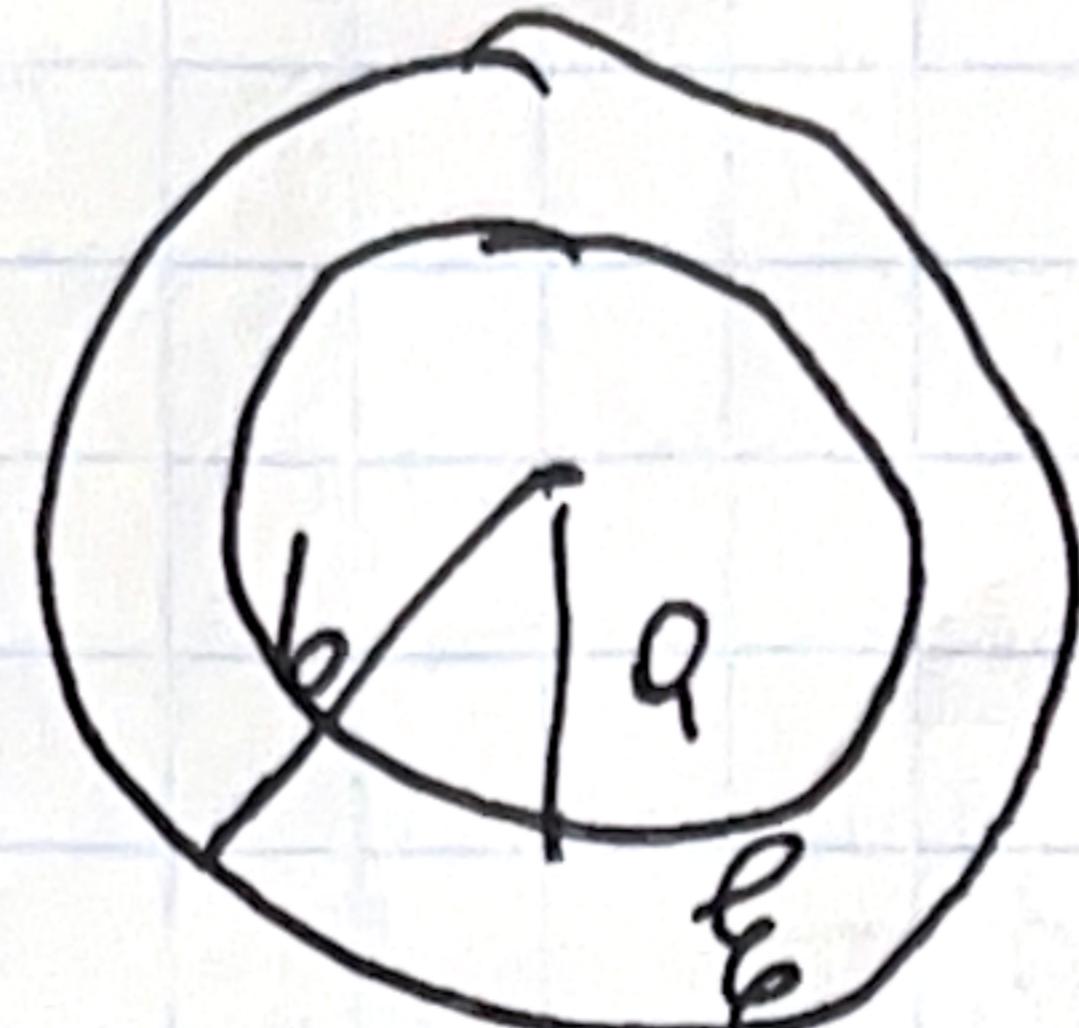
a, b
 $a < b$

a) C, esell E

b) C, esell

$$\frac{E}{L} = \frac{d}{r}$$

Pewerzenie:



a)

$$F(r) = \frac{Q}{2\pi\epsilon_0\epsilon L \cdot r}$$

$$U = \int_a^b \frac{Q}{2\pi\epsilon_0\epsilon L} \cdot \frac{1}{r} dr =$$

$$= \frac{Q}{2\pi\epsilon_0\epsilon L} \ln \frac{b}{a}$$

$$C = \frac{Q}{U} = \frac{2\pi\epsilon_0\epsilon L}{\ln \frac{b}{a}}$$

$$b) E(r) = \frac{Q}{2\pi\epsilon_0 L \cdot r \cdot d} = \frac{Q}{2\pi\epsilon_0 L d}$$

$$U = \int_a^b \frac{Q}{2\pi\epsilon_0 L d} dr = \frac{Q}{2\pi\epsilon_0 L d} \cdot (b - a)$$

$$C = \frac{2\pi\epsilon_0 L d}{b - a}$$

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