

task_ci1z102x25jmpzvs_with_calculation

Student Group

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electrostatic, electric field strength, exam ee2 SS2024

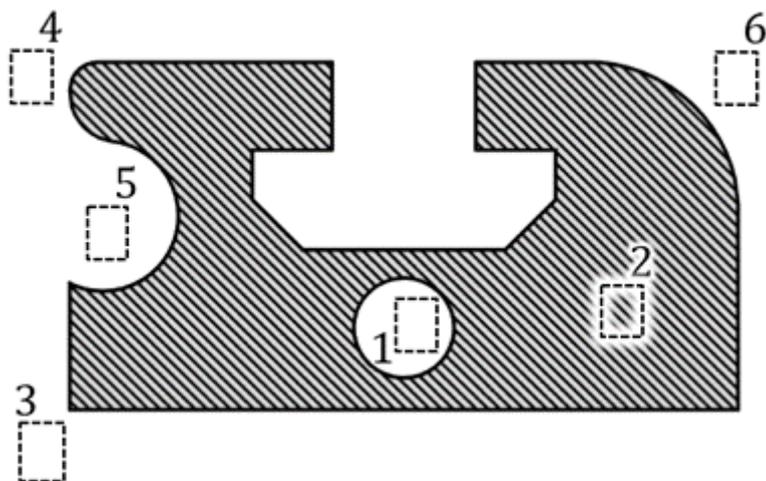
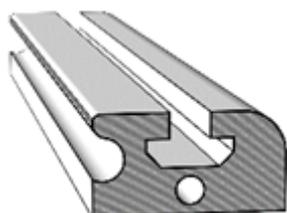
Exercise E3 Electrostatics II

(written test, approx. 10 % of a 120-minute written test, SS2024)

You must analyze an aluminum profile for usage in an environment critical for electrostatic discharge.

The figure on the right shows the cross-section of the aluminum element (hatched). During the application, it might get charged up. All areas in white consist of air (= dielectric).

Six designated areas are shown by dashed frames and numbers n, which are partly inside the object.



Arrange the designated areas clearly according to ascending field strengths $|\vec{E}_n|$ (absolute magnitude)! Indicate also, if designated areas have quantitatively the same field strength.

Result

$$|E_1|=|E_2|=0 < |E_5| < |E_6| < |E_4| < |E_3|$$

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