

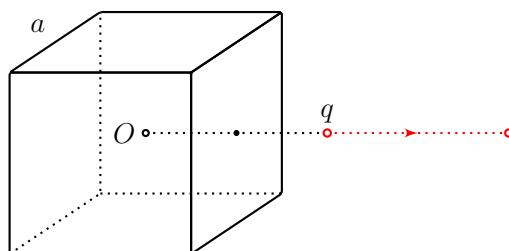


*Cuba is a little piece of heaven*

## Cube

At a distance of  $2a$  from the center of a grounded conducting solid cube with the side  $a$  on a line parallel to one of its faces and passing through the center of the other face there is a point charge  $q$  (see Fig.) The charge is slowly moved along this line so that the distance becomes equal to  $6a$ , performing the mechanical work of  $A$ .

What is the change in the interaction energy of the point charge with the induced charges on the surface of the cube? (*10 points*)



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First hint — 04.05.2020 14:00 (Moscow time)

Second hint — 06.05.2020 14:00 (Moscow time)

Final of the second round — 08.05.2020 22:00 (Moscow time)