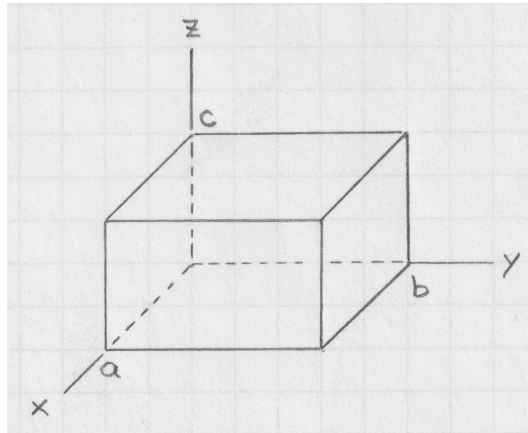


[lex126] Electrostatic potential inside rectangular box I

A box with rectangular sides is positioned into a Cartesian coordinate system as shown. Each side of the box is a conductor insulated from the adjacent sides, held at a different electric potentials V_1, \dots, V_6 . What is the electric potential $\Phi(x, y, z)$ inside the box?

Hint: This problem can be split into six equivalent parts by invocation of the superposition principle. Keep five sides of the box grounded and side i at the specified potential V_i .



Solution: