

# Electrodynamics

Problem Set 1  
Kharazmi University

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## Conceptual Problems:

**Problem 1.1.** In electrostatics, why the electric field inside a conductor is zero?

**Problem 1.2.** Briefly, describe Helmholtz's theorem.

**Problem 1.3.** Briefly, describe Green's Function (in electrodynamics). Why it can be important for us?

**Problem 1.4.** Write down Stokes's theorem and the Divergence theorem. Also, explain them.

## Mathematical Problems:

**Problem 1.5.** A point charge  $q$  is situated a distance  $a$  from the center of a grounded conducting sphere of radius  $R$ . Find the potential outside the sphere.

\*Hint: see page 128 (chapter 3) of the last edition of Griffiths.

**Problem 1.6.** voluntarily, solve one of the exercises in chapter 1 (Jackson).