

## Exercises in Electrodynamics

Based on course by Michael Gedalin and Edited By Ben Yellin and Daniel Hurowitz  
*Department of Physics, Ben-Gurion University, Beer-Sheva 84105, Israel*

This exercise pool is intended for an undergraduate course in “Electrodynamics 1”. Some of the problems are original, while others were assembled from various sources. In particular I used Gedalins Exercise Pool, Pollack & Stump and Griffiths

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### [Exercise 0223]

#### **Charged half-space**

The half-space  $z \leq 0$  is charged with the charge density  $\rho = \rho_0 \cos(\vec{k} \cdot \vec{r})$ , where  $\vec{k}$  is not parallel to  $\hat{z}$ . Find  $\phi$ .  
*Taken from Gedalin 9.4*