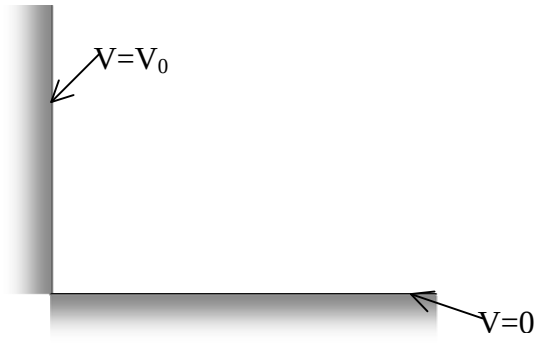
TFY 4240
Øving 3 2006

Problem 1



In class I shoved that the potential for two infinite plates, one at potential V=0 and one at potential V_o is given by:

$$V(x,y) = \frac{2V_0}{\pi}\int_0^\infty \frac{1}{k}\sin(ky)e^{-kx}dk = \frac{2V_0}{\pi}Arc\cot g(\frac{x}{y}) = \frac{2V_0}{\pi}Arctg(\frac{y}{x})$$

a) Show by inserting this in Laplace equation that the differential equation is satisfied and that the boundary conditions are satisfied.
b) Find the induced charge on the two surfaces.

Problem 2

Problem 3.12 in Griffiths.

Problem 3

Problem 3.32 in Griffiths.

Problem 4

Problem 3.33 in Griffiths