

MATH 4335
November 20, 2009

Name _____

1. Find $F(x,y) = \psi(\sqrt{x^2 + y^2}) = \psi(r)$ such that

$\Delta F(x,y) = \delta_0$, that is,

$\iint_{R^2} F(x,y) \Delta \phi(x,y) \, dx dy = \phi(0,0)$ for all smooth functions ϕ for which

there is $R < \infty$ such that $\phi(x,y) = 0$ whenever $x^2 + y^2 \geq R^2$. (This means that ϕ has bounded support.)