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18.306 Advanced Partial Differential Equations with Applications
Fall 2009

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Lecture 25 2009 12 07 MON

TOPICS: Generalized functions.

Green's functions for heat equation in multi-D.

Reformulate initial value problem $T_t = T_{xx}$, $T(x, 0) = G(x)$ in terms of test functions. In particular, what does the Green function satisfy.

Formulate Green's function problem for source term in terms of test functions. Note that we already know the solution!

Heat equation in 2-D/3-D: Unbounded space Green's function.

1-D theory extend easily to sets that tile the plane under reflections.

Method of images and reflection symmetries.

Illustrate with Strips, $2\pi/N$ wedges, squares.