

Final Review (the number in parenthesis denotes the Chapter)

Definitions: Fourier coefficients, Fourier series, Good Kernels, The space  $S$  and the Fourier transform, X-ray transform, Radon transform and dual Radon transform.

Theorems without proof: Uniqueness Theorem (2)2.1, Best approximation lemma (3)1.2, Theorem (3)1.4, Bessel's inequality Remark (3) 1, Gaussians as good kernels Theorem (5) 1.6, Convolution Corollary (5) 1.7, Laplace equation Section (5) 2.2 up to Theorem (5) 2.6, Mean value property Lemma (5) 2.8, Conservation of energy Theorem (6) 3.2, Huygens Principle, Heisenberg principle Theorem (5) 4.1

Theorems with proof: Uniform convergence Corollary (2)2.3, Good kernels Theorem (2)4.1., Mean square convergence & Parseval Theorem (3) 1.3, Pointwise convergence Theorem (3)2.1. Fourier inversion formula Theorem (5)1.9, Plancherel Theorem (5)1.12, Heat equation Theorem (5) 2.1, Uniqueness theorem (5) 2.3, Uniqueness Theorem (5) 2.7, Poisson summation formula Theorem (5) 3.1, The Wave equation Theorem (6)3.1, Theorem (6) 3.6, Reconstruction Theorem (6)5.4

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