

Method	Serial Time	Storage	Direct or Iterative
Dense Cholesky	n^3	n^2	D
Explicit inverse	n^2	n^2	D
Band Cholesky	n^2	$n^{3/2}$	D
Jacobi's	n^2	n	I
Gauss Seidel	n^2	n	I
Sparse Cholesky	$n^{3/2}$	$n \cdot \log n$	D
Conjugate gradients	$n^{3/2}$	n	I
Successive overrelaxation	$n^{3/2}$	n	I
SSOR with Chebyshev accl.	$n^{5/4}$	n	I
Fast Fourier transform	$n \cdot \log n$	n	D
Block cyclic reduction	$n \cdot \log n$	n	D
Multigrid	n	n	I
Lower bound	n	n	

Table 1: Order of complexity of solving Poisson's equation on an N -by- N grid ($n = N^2$).