Blog Entry © Tuesday, January 21, 2025, Rare Snow Day, by James Pate Williams, Jr. Gauss-Seidel Method and Successive Overrelaxation (SOR) Method for Solving Systems of Linear Equations

	⊞ CPPLinearAlgebralM		×
ŀ	File Help		
	n (3 or 4): 4		
	Max Its: 50		
	Tolerance: 1.0e-6 Prob (1 - 4): 2		
	Clear		
	Gauss-Scidel		
	Solution Vector ×		
	0.3636363295		
	×-Norm-2 = 0.0000002136		
	b - Norm - 2 = 0.0000001236		
	Iterations = 10		
	Runtime = 73 Microseconds		
	SuccessiveOverrelaxation		
	Solution Vector x		
	0.3636360805		
	X - Norm - 2 = 0.000007258		
	b - Norm - 2 = 0.0000012735		
	Iterations = 29		
	Runtime = 36 Microseconds		
	- 30 milliocasius		
L			-
	★ CPPLinearAlgebralM		×
	⊞ CPPLinearAlgebralM File Help	-	×
		E-	×
	File Help	E-	×
	File Help n (3 or 4): 3		×
	File Help n (3 or 4): 3 Max Its: 50		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Scidel Solution Vector x		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Seidel Solution Vector × 0.1861198471 0.3312302634 -0.4227129385		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Seidel Solution Vector x 0.1861198471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.0000004630		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Seidel Solution Vector × 0.1861198471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.0000001526		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Seidel Solution Vector × 0.1861198471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.00000004630 b - Norm - 2 = 0.00000001526 Iterations = 9		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Scidel Solution Vector x 0.1861199471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.0000001526 Iterations = 9 Runtime = 19 Microseconds		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Seidel Solution Vector x 0.1861199471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.0000001526 Iterations = 9 Runtime = 19 Microseconds SuccessiveOverrelaxation		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Seidel Solution Vector x 0.1861198471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.0000001526 Iterations = 9 Runtime = 19 Microseconds SuccessiveOverrelaxation Solution Vector x		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Seidel Solution Vector × 0.1861198471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.0000001526 Iterations = 9 Runtime = 19 Microseconds SuccessiveOverrelaxation Solution Vector × 0.1861198327 0.3312301921 -0.4227129623		×
	File Help n (3 or 4): 3 Max Hs: 50 Tolerance: 10e-6 Prob (1 - 4): 4 Compute Clear Gauss-Seidel Solution Vector × 0.1861198471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.0000001526 Iterations = 9 Runtime = 19 Microseconds Successive Overrelaxation Solution Vector × 0.1861198327 0.3312301921 -0.4227129623 X - Norm - 2 = 0.0000005490		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Scidel Solution Vector × 0.1861198471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.0000004530 b - Norm - 2 = 0.0000001526 Iterations = 9 Runtime = 19 Microseconds Successive Overrelaxation Solution Vector × 0.1861198327 0.3312301921 -0.4227129623 X - Norm - 2 = 0.0000005490 b - Norm - 2 = 0.0000005490 b - Norm - 2 = 0.0000005483		×
	File Help 13 or 4 : 3		×
	File Help n (3 or 4): 3 Max Its: 50 Tolerance: 1.0e-6 Prob (1 - 4): 4 Compute Clear Gauss-Scidel Solution Vector × 0.1861198471 0.3312302634 -0.4227129385 X - Norm - 2 = 0.0000004530 b - Norm - 2 = 0.0000001526 Iterations = 9 Runtime = 19 Microseconds Successive Overrelaxation Solution Vector × 0.1861198327 0.3312301921 -0.4227129623 X - Norm - 2 = 0.0000005490 b - Norm - 2 = 0.0000005490 b - Norm - 2 = 0.0000005483		×
	File Help 13 or 4 : 3		×

See source code for the two systems of linear equations or the textbook and web location mentioned in the C/C++ Win32 source code.