

Example 1. 1.13 seconds for 3000000 terms (non-parallel using explicit calls). Sum =  
15.49133867820057406351711346262140144713987478129118

Example 2. 0.27 seconds for 3000000 terms (parallel using explicit calls). Sum =  
15.49133867820057406351711346262140144713987478129118

Example 3. 1.18 seconds for 3000000 terms (non-parallel using fmzm). Sum =  
15.49133867820057406351711346262140144713987478129118

Example 4. 0.29 seconds for 3000000 terms (parallel using fmzm) Sum =  
15.49133867820057406351711346262140144713987478129118

Example 5. 3.23 seconds for the heat equation using  $N = 30$  and a 61x61 grid.

Critical time  $t_1 = 0.4237597655261$

Example 6. Get several approximations to  $t_1$  for different grid sizes.

N = 2	$t_1 = 0.3704770533853$
N = 4	$t_1 = 0.4101128561049$
N = 6	$t_1 = 0.417725310247$
N = 8	$t_1 = 0.4204890393155$
N = 10	$t_1 = 0.4217531426529$
N = 12	$t_1 = 0.4224416576260$
N = 14	$t_1 = 0.4228574458342$
N = 16	$t_1 = 0.4231275662427$
N = 18	$t_1 = 0.4233128777883$
N = 20	$t_1 = 0.4234454890749$
N = 22	$t_1 = 0.4235436381929$
N = 24	$t_1 = 0.4236183067653$
N = 26	$t_1 = 0.4236764273189$
N = 28	$t_1 = 0.4237225509610$
N = 30	$t_1 = 0.4237597655261$
N = 32	$t_1 = 0.4237902258226$
N = 34	$t_1 = 0.4238154725518$
N = 36	$t_1 = 0.4238366309395$
N = 38	$t_1 = 0.4238545382679$
N = 40	$t_1 = 0.4238698279699$

Fit increasingly accurate error formulas for better accuracy.

Degree of error polynomial = 3	t1 = .424007666051960724576969889474
Degree of error polynomial = 4	t1 = .424011378076938401630403468224
Degree of error polynomial = 5	t1 = .424011387707831301853239103036
Degree of error polynomial = 6	t1 = .424011387020075555268971096080
Degree of error polynomial = 7	t1 = .424011387035647355827128541553
Degree of error polynomial = 8	t1 = .424011387033620195098553896979
Degree of error polynomial = 9	t1 = .424011387033688518579825998375
Degree of error polynomial = 10	t1 = .424011387033688366510439298055
Degree of error polynomial = 11	t1 = .424011387033688361151733870336
Degree of error polynomial = 12	t1 = .424011387033688364015742256228
Degree of error polynomial = 13	t1 = .424011387033688363791866518152
Degree of error polynomial = 14	t1 = .424011387033688363797581810695
Degree of error polynomial = 15	t1 = .424011387033688363797435312879
Degree of error polynomial = 16	t1 = .424011387033688363797432816953
Degree of error polynomial = 17	t1 = .424011387033688363797432817867
Degree of error polynomial = 18	t1 = .424011387033688363797432817415
Degree of error polynomial = 19	t1 = .424011387033688363797432819901
Degree of error polynomial = 20	t1 = .424011387033688363797432859803

As a check, subtracting this last result from the correct answer gives 8.0879045741E-25