Министерство науки и образования РФ Новосибирский государственный технический университет

Кафедра прикладной математики

Лабораторная работа №1 по численным методам **ПРЯМЫЕ МЕТОДЫ РЕШЕНИЯ СЛАУ**

Факультет: ПМИ Группа: ПМ-86

Студент: Пустосмехов В.

Преподаватели:

Задорожный Александр Геннадьевич

Токарева Марина Георгиевна

1 Цель работы

Разработать программу решения СЛАУ методом LU(sq)-разложения с хранением матрицы в профильном формате. Исследовать накопление погрешности и её зависимость от числа обсусловленности. Сравнить реализованный метод по точности получаемого решения и количеству действий с методом Гаусса.

2 Теоретическая часть

Пусть дана система линейных алгебраических уравнений:

$$Ax = B \tag{1.1}$$

Прямой метод LU(sq)-разложения основан на разложении матрицы A в произведение нижнетреугольной матрицы L и верхнетреугольной матрицы U, причём $l_{ii} = u_{ii} \forall i$, т.е. диагональные элементы матриц L и U равны.

Рассмотрим алгоритм решения системы (1.1) с помощью LU(sq)-разложения. Предположим, что нам удалось разложить матрицу A = LU (1.2). Подставляя (1.2) в (1.1), получаем LUx = B (1.3). Обозначим Ux = y (1.4), тогда подставляя (1.4) в (1.3), получим Ly = B.

Таким образом, решение системы (1.1) сводится к трём основным этапам:

- 1. Из элементов матрицы A найти элементы матриц L и U
- 2. Решить систему (1.5) с нижнетреугольной матрицей L (прямой ход)
- 3. Решить систему (1.4) с верхнетреугольной матрицей U (обратный ход)

Рассмотрим алгоритм получения $\mathrm{LU}(\mathrm{sq})$ -разложения. Матрицы L и U будем искать в следующем виде:

$$L = \begin{pmatrix} q_1 & 0 & 0 & \cdots & 0 \\ l_{21} & q_2 & 0 & \cdots & 0 \\ l_{31} & l_{32} & q_3 & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots & \ddots & \vdots \\ l_{n1} & l_{n2} & l_{n3} & \cdots & q_n \end{pmatrix}; U = \begin{pmatrix} q_1 & u_{12} & u_{13} & \cdots & u_{1n} \\ 0 & q_2 & u_{23} & \cdots & u_{2n} \\ 0 & 0 & q_3 & \cdots & u_{3n} \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & \cdots & q_n \end{pmatrix}$$

Учитывая равенство (1.2), умножаем последовательно строки матрицы L на столбцы матрицы U, получаем систему, состоящую из n^2 уравнений с n^2 неизвестными $l_{ij}, i = \overline{1, n}, j = \overline{1, i - 1}; u_{ij}, i = \overline{1, n}, j = \overline{i + 1, n}; q_i, i = \overline{1, n}$ (n - размерность СЛАУ):

```
a_{11} = q_1^2;
a_{12} = q_1 u_{12}
a_{13} = q_1 u_{13}
...
a_{21} = l_{21} q_1
a_{22} = l_{21} u_{12} + q_2^2
a_{23} = l_{21} u_{13} + q_2 u_{23}
...
```

Решая эту систему, получим общие формулы для нахождения элементов матриц L и U:

$$l_{ij} = \frac{a_{ij} - \sum_{k=1}^{j-1} l_{ik} u_{kj}}{q_j}, i = \overline{1, n}, j = \overline{1, i-1};$$

$$q_i = \sqrt{a_{ii} - \sum_{k=1}^{i-1} l_{ik} u_{ki}, i = \overline{1, n};}$$

$$u_{ij} = \frac{a_{ij} - \sum_{k=1}^{i-1} l_{ik} u_{kj}}{q_i}, i = \overline{1, n}, j = \overline{i+1, n}$$

Формулы для нахождения вектора y и, наконец, искомого вектора x:

$$y_{i} = \frac{b_{i} - \sum_{j=i}^{n} y_{j} u_{ij}}{q_{i}}, i = \overline{1, n}$$
$$x_{i} = \frac{y_{i} - \sum_{j=i}^{i} y_{j} l_{ij}}{q_{i}}, i = \overline{1, n}$$

Как видно, не всегда в результате LU(sq)-разложения действительной матрицы, получатся действительные матрицы. Мы ограничимся случаями, когда в результате разложения получаются всё-таки действительные матрицы.

Заметим, что ни одна LU(sq)-разложимая матрица не может быть основной матрицей несовместной СЛАУ или СЛАУ, имеющей бесконечное множество решений. Докажем это утверждение от противного: пусть существует LU(sq)-разложимая матрица A, являющаяся основной матрицей СЛАУ, не имеющей решений, или имеющей их бесконечное множество. Тогда, по теореме Кронекера-Капелли, её ранг меньше её размерности, а, значит, det(A) = 0. Поскольку A = LU, det(A) = det(LU) = det(L) * det(U). Т.к. L и U - диагональные матрицы (причём, с одинаковыми элементами на диагоналях), $det(L) = det(U) = \prod_{i=1}^{n} q_i$,

а, значит, $det(A) = \prod_{i=1}^n q_i^2 = 0$, что может выполняться только если хотя бы один из q_i равен нулю. Но такая ситуация невозможна, т.к. q_i является знаменателем выражения для $l_{ki}, k = \overline{1,n}$. Получили противоречие, следовательно, наше предположение ошибочно, и, если матрица LU(sq)-разложима, то она является основной матрицей совместной СЛАУ, имеющей единственное решение.

4 Тестирование программы

4.1 Простой тест

Исходная матрица

$$A = \begin{pmatrix} 1 & 0 & 0 & 6 \\ 1 & 4 & 14 & 6 \\ 0 & 8 & 37 & 9 \\ 0 & 0 & 15 & 31 \end{pmatrix}$$

Её LU(sq)-разложение

$$L = \begin{pmatrix} 1 & & \\ 1 & 2 & \\ 0 & 4 & 3 \\ 0 & 0 & 5 & 4 \end{pmatrix}$$

$$U = \begin{pmatrix} 1 & 0 & 0 & 6 \\ 2 & 7 & 0 \\ & 3 & 3 \\ 0 & & 4 \end{pmatrix}$$

Если вектор правой части равен $B=(25,75,163,169)^T$, то вектор y, соответствующий решению уравнения Ly=B равен $y=(25,25,21,22.75)^T$, а вектор x, соответствующий решению уравнения Ux=y, а, значит, и Ax=B, равен $x=(1,2,3,4)^T$

4.2 Матрица побольше

$$A = \begin{pmatrix} 1 & 15 & 16 & 17 & 18 & 19 \\ 0 & 4 & 40 & 42 & 44 & 46 \\ 1 & 31 & 185 & 257 & 269 & 281 \\ 2 & 44 & 199 & 413 & 523 & 545 \\ 3 & 57 & 198 & 465 & 785 & 936 \\ 4 & 70 & 197 & 489 & 878 & 1283 \end{pmatrix}$$

$$L = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 2 & 0 & 0 & 0 & 0 \\ 1 & 8 & 3 & 0 & 0 & 0 \\ 2 & 7 & 9 & 4 & 0 & 0 \\ 3 & 6 & 10 & 12 & 5 & 0 \\ 4 & 5 & 11 & 12 & 14 & 6 \end{pmatrix}$$

$$U = \begin{pmatrix} 1 & 15 & 16 & 17 & 18 & 19 \\ 0 & 2 & 20 & 21 & 22 & 23 \\ 0 & 0 & 3 & 24 & 25 & 26 \\ 0 & 0 & 0 & 4 & 27 & 28 \\ 0 & 0 & 0 & 0 & 5 & 29 \\ 0 & 0 & 0 & 0 & 0 & 6 \end{pmatrix}$$

$$B = (251, 440, 2491, 3858, 4996, 5668)^{T}$$

$$Y = (251, 220, 160, 94, 39, 6)^{T}$$

$$X = (6, 5, 4, 3, 2, 1)^{T}$$

4.3 Диагональная матрица

 $B = (100, 200, 300, 400, 500, 600, 700, 800, 900, 1000)^{T}$ $X = (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)^{T}$

4.4 Не LU(sq)-разложимая матрица

$$A = \begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & 0 & 0 & 0 \\ 1 & 2 & 1 & 1 \\ 1 & 2 & 3 & 2 \end{pmatrix}$$

Вывод программы: Matrix is not LU(sq)-decomposeable

4.5 Вещественные числа

$$A = \begin{pmatrix} 0.01 & 1500 & 16 & 0.17 & 1.8 & 0.19 \\ 0.00 & 400 & 40 & 0.42 & 4.4 & 0.46 \\ 0.01 & 3100 & 185 & 2.57 & 26.9 & 0.281 \\ 0.02 & 4400 & 199 & 4.13 & 52.3 & 0.545 \\ 0.03 & 5700 & 198 & 4.65 & 78.5 & 0.936 \\ 0.04 & 7000 & 197 & 4.89 & 87.8 & 1.283 \end{pmatrix}$$

$$B = (2.51, 4.40, 24.91, 38.58, 49.96, 56.68)^{T}$$
$$X = (6, 0.0005, 0.04, 3, 0.2, 10)^{T}$$

5 Зависимость точности решения от изменения диагонального преобладания

$$A = \begin{pmatrix} 7+10^{-}k & -4 & -2 & 0 & 0 & 0 & -1 & 0 & 0 & 0 \\ -1 & 16 & -3 & -4 & 0 & 0 & -4 & 0 & -4 & 0 \\ -2 & -3 & 14 & -1 & -2 & 0 & -2 & -4 & 0 & 0 \\ -1 & 0 & -1 & 7 & -1 & 0 & 0 & -3 & -1 & 0 \\ 0 & -3 & 0 & -1 & 9 & 0 & 0 & -4 & -1 & -0 \\ 0 & -4 & -2 & -3 & -1 & 17 & -2 & -4 & 0 & -1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 2 & 0 & -2 & -0 \\ -1 & -2 & -4 & -3 & -4 & -4 & -1 & 23 & -3 & -1 \\ 0 & -4 & 0 & -1 & -1 & 0 & -2 & -3 & 11 & 0 \\ 0 & 0 & -4 & -3 & -2 & -1 & -2 & -3 & -4 & 19 \end{pmatrix}$$

Как видно из таблицы, с увеличением k мы всё менее и менне точно можем представить элемент $q_1 = \sqrt{a_{11}}$, а от точности его представления зависит точность представления остальных элементов матрицы. В результате, уже при k=5 (для float) и k=14 (для double) решение системы $A^k x^k = F^k$ всё больше напоминает решение системы Ax = F: $x = (-8.375, -7.375, -6.375, -5.375, -4.375, -3.375, -2.375, -1.375, -0.375, 0.625)^T$

k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
		(float)		(double)		(mixed)
0	1.0000190	1.90e-05	0.999999999995	5.38e-14	1.0000007	7.15e-07
	2.0000219	2.19e-05	1.9999999999994	6.13e-14	2.0000010	9.54e-07
	3.0000212	2.12e-05	2.9999999999994	6.04e-14	3.0000007	7.15e-07
	4.0000219	2.19e-05	3.9999999999994	6.13e-14	4.0000014	1.43e-06
	5.0000219	2.19e-05	4.9999999999994	6.13e-14	5.0000010	9.54e-07
	6.0000224	2.24e-05	5.999999999994	6.04e-14	6.0000014	1.43e-06
	7.0000224	2.24e-05	6.9999999999994	6.31e-14	7.0000010	9.54e-07
	8.0000219	2.19e-05	7.9999999999994	6.13e-14	8.0000010	9.54e-07
	9.0000229	2.29e-05	8.999999999994	6.22e-14	9.0000010	9.54e-07
	10.0000229	2.29e-05	9.999999999994	6.39e-14	10.0000019	1.91e-06

k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
		(float)		(double)		(mixed)
1	1.0002050	2.05e-04	0.9999999999973	2.72e-13	1.0001210	1.21e-04
	2.0002077	2.08e-04	1.9999999999972	2.75e-13	2.0001228	1.23e-04
	3.0002077	2.08e-04	2.9999999999973	2.74e-13	3.0001225	1.23e-04
	4.0002074	2.07e-04	3.9999999999973	2.75e-13	4.0001230	1.23e-04
	5.0002079	2.08e-04	4.9999999999973	2.74e-13	5.0001235	1.24e-04
	6.0002084	2.08e-04	5.9999999999972	2.76e-13	6.0001230	1.23e-04
	7.0002079	2.08e-04	6.9999999999972	2.77e-13	7.0001230	1.23e-04
	8.0002079	2.08e-04	7.9999999999972	2.75e-13	8.0001230	1.23e-04
	9.0002079	2.08e-04	8.9999999999972	2.75e-13	9.0001230	1.23e-04
	10.0002079	2.08e-04	9.999999999973	2.74e-13	10.0001230	1.23e-04

k	x^k (float)	$x^* - x^k$	xk (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
		(float)		(double)		(mixed)
2	0.9995797	4.20e-04	1.00000000000052	5.20e-13	0.9997004	3.00e-04
	1.9995792	4.21e-04	2.00000000000052	5.21e-13	1.9996998	3.00e-04
	2.9995794	4.21e-04	3.0000000000052	5.21e-13	2.9997001	3.00e-04
	3.9995790	4.21e-04	4.00000000000052	5.20e-13	3.9996996	3.00e-04
	4.9995794	4.21e-04	5.0000000000052	5.21e-13	4.9996996	3.00e-04
	5.9995799	4.20e-04	6.00000000000052	5.20e-13	5.9997001	3.00e-04
	6.9995794	4.21e-04	7.00000000000052	5.20e-13	6.9996996	3.00e-04
	7.9995794	4.21e-04	8.0000000000052	5.20e-13	7.9996996	3.00e-04
	8.9995794	4.21e-04	9.0000000000052	5.22e-13	8.9996996	3.00e-04
	9.9995794	4.21e-04	10.00000000000052	5.22e-13	9.9996996	3.00e-04

k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
		(float)		(double)		(mixed)
3	0.9734167	2.66e-02	0.9999999993319	6.68e-11	0.9926518	7.35e-03
	1.9734129	2.66e-02	1.9999999993318	6.68e-11	1.9926507	7.35e-03
	2.9734137	2.66e-02	2.9999999993318	6.68e-11	2.9926510	7.35e-03
	3.9734142	2.66e-02	3.9999999993318	6.68e-11	3.9926507	7.35e-03
	4.9734130	2.66e-02	4.9999999993318	6.68e-11	4.9926510	7.35e-03
	5.9734130	2.66e-02	5.9999999993318	6.68e-11	5.9926515	7.35e-03
	6.9734125	2.66e-02	6.9999999993317	6.68e-11	6.9926510	7.35e-03
	7.9734135	2.66e-02	7.9999999993318	6.68e-11	7.9926510	7.35e-03
	8.9734125	2.66e-02	8.9999999993318	6.68e-11	8.9926510	7.35e-03
	9.9734135	2.66e-02	9.999999993318	6.68e-11	9.9926519	7.35e-03

k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
	w (110a)	(float)	w (double)	(double)	w (minou)	(mixed)
4	0.9220056	7.80e-02	0.99999999924949	7.51e-10	1.0127788	1.28e-02
1	1.9220046	7.80e-02	1.99999999924948	7.51e-10	2.0127790	1.28e-02
	2.9220045	7.80e-02	2.99999999924948	7.51e-10	3.0127790	1.28e-02
	3.9220045	7.80e-02	3.99999999924948	7.51e-10	4.0127792	1.28e-02
	4.9220042	7.80e-02	4.99999999924948	7.51e-10	5.0127792	1.28e-02
	5.9220052	7.80e-02	5.99999999924948	7.51e-10 7.51e-10	6.0127797	1.28e-02
		7.80e-02 7.80e-02	6.99999999924948	7.51e-10 7.51e-10		1.28e-02 1.28e-02
	6.9220042	1			7.0127792	I
	7.9220042	7.80e-02	7.99999999924948	7.51e-10	8.0127792	1.28e-02
	8.9220047	7.80e-02	8.99999999924948	7.51e-10	9.0127792	1.28e-02
	9.9220047	7.80e-02	9.9999999924948	7.51e-10	10.0127792	1.28e-02
_	h	I 4 h	I Io	I + I	I 6	I + 10
k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
		(float)		(double)		(mixed)
5	-1.4044898	2.40e+00	0.9999999880961	1.19e-09	0.8902806	1.10e-01
	-0.4044932	2.40e+00	1.99999999880961	1.19e-09	1.8902806	1.10e-01
	0.5955071	2.40e+00	2.99999999880961	1.19e-09	2.8902805	1.10e-01
	1.5955070	2.40e+00	3.99999999880961	1.19e-09	3.8902807	1.10e-01
	2.5955057	2.40e+00	4.99999999880961	1.19e-09	4.8902807	1.10e-01
	3.5955062	2.40e+00	5.99999999880961	1.19e-09	5.8902807	1.10e-01
	4.5955062	2.40e+00	6.99999999880961	1.19e-09	6.8902807	1.10e-01
	5.5955062	2.40e+00	7.99999999880961	1.19e-09	7.8902807	1.10e-01
	6.5955062	2.40e+00	8.99999999880961	1.19e-09	8.8902807	1.10e-01
	7.5955057	2.40e+00	9.99999999880961	1.19e-09	9.8902798	1.10e-01
		100 - 00				1.100-01
		1	1	1	1	
k	x^k (float)	$x^* - x^k$	xk (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
K	u (110at)	x - x (float)	T (doubte)	(double)	T (mixed)	(mixed)
6	-6.6923060	7.69e+00	0.99999997256948	2.74e-08	-2.3742352	3.37e+00
°				2.74e-08 2.74e-08		
	-5.6923075	7.69e+00	1.99999997256948		-1.3742356	3.37e+00
	-4.6923075	7.69e+00	2.99999997256948	2.74e-08	-0.3742357	3.37e+00
	-3.6923077	7.69e+00	3.99999997256948	2.74e-08	0.6257644	3.37e+00
	-2.6923072	7.69e+00	4.99999997256948	2.74e-08	1.6257645	3.37e+00
	-1.6923075	7.69e+00	5.99999997256948	2.74e-08	2.6257644	3.37e+00
	-0.6923076	7.69e+00	6.99999997256948	2.74e-08	3.6257644	3.37e+00
	0.3076923	7.69e+00	7.99999997256948	2.74e-08	4.6257644	3.37e+00
	1.3076924	7.69e+00	8.99999997256948	2.74e-08	5.6257644	3.37e+00
	2.3076925	7.69e+00	9.99999997256948	2.74e-08	6.6257644	3.37e+00
						
k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
k	x^k (float)	$x^* - x^k$ (float)	x^k (double)	$x^* - x^k$ (double)	x^k (mixed)	$x^* - x^k$ (mixed)
k 7	x^k (float)	I	x^k (double) 0.99999979815290		x ^k (mixed)	
		(float)	0.99999979815290	(double)		(mixed)
	0.0000000	(float) 1.00e+00		(double) 2.02e-07 2.02e-07	0.0000000	(mixed) 1.00e+00
	0.0000000 0.0000000 0.0000000	(float) 1.00e+00 2.00e+00 3.00e+00	0.99999979815290 1.99999979815290 2.99999979815290	(double) 2.02e-07 2.02e-07 2.02e-07	0.0000000 0.0000000 0.0000000	(mixed) 1.00e+00 2.00e+00 3.00e+00
	0.0000000 0.0000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00	0.99999979815290 1.99999979815290	(double) 2.02e-07 2.02e-07	0.0000000 0.0000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00
	0.000000 0.000000 0.000000 0.000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00	0.9999979815290 1.99999979815290 2.99999979815290 3.99999979815290 4.9999979815290	(double) 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00
	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00	0.9999979815290 1.99999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290	(double) 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00
	0.000000 0.000000 0.000000 0.000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 6.9999979815290	(double) 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	0.000000 0.000000 0.000000 0.000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00
	0.000000 0.000000 0.000000 0.000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00	0.9999979815290 1.99999979815290 2.99999979815290 3.9999979815290 4.9999979815290 5.9999979815290 6.9999979815290 7.9999979815290	(double) 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	0.000000 0.000000 0.000000 0.000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00
	0.000000 0.000000 0.000000 0.000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 6.9999979815290	(double) 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	0.000000 0.000000 0.000000 0.000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00
	0.000000 0.000000 0.000000 0.000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 7.00e+00 8.00e+00 9.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 7.9999979815290 8.9999979815290	(double) 2.02e-07	0.000000 0.000000 0.000000 0.000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00
	0.000000 0.000000 0.000000 0.000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 7.00e+00 8.00e+00 9.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 7.9999979815290 8.9999979815290	(double) 2.02e-07	0.000000 0.000000 0.000000 0.000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00
	0.000000 0.000000 0.000000 0.000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 7.9999979815290 8.9999979815290	(double) 2.02e-07	0.000000 0.000000 0.000000 0.000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
7	0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 9.9999979815290	(double) 2.02e-07	0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
	0.000000 0.000000 0.000000 0.000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 7.9999979815290 8.9999979815290	(double) 2.02e-07	0.000000 0.000000 0.000000 0.000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.99999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 5.9999979815290 \\ 6.9999979815290 \\ 7.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ \end{array}$	(double) 2.02e-07 (double)	0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
7	0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000	$ \begin{array}{c} ({\rm float}) \\ 1.00{\rm e}+00 \\ 2.00{\rm e}+00 \\ 3.00{\rm e}+00 \\ 3.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 5.00{\rm e}+00 \\ 6.00{\rm e}+00 \\ 7.00{\rm e}+00 \\ 8.00{\rm e}+00 \\ 9.00{\rm e}+00 \\ 1.00{\rm e}+01 \\ \\ x^*-x^k \\ ({\rm float}) \\ 1.00{\rm e}+00 \\ \end{array} $	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 9.9999979815290	$ \begin{array}{c} (\text{double}) \\ 2.02\text{e-}07 \\ 5.02\text{e-}07 \\ 2.02\text{e-}07 \\ 5.02\text{e-}07 \\ 2.02\text{e-}07 \\ 2.02e-$	0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 6.00e+00 7.00e+00 7.00e+00 9.00e+00 1.00e+01
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 x ^k (float)	(float) 1.00e+00 2.00e+00 3.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01 x* - x ^k (float) 1.00e+00 2.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 7.9999979815290 7.9999979815290 9.9999979815290 x ^k (double) 1.00000005175564 2.00000005175564	(double) 2.02e-07 5.02e-07 5.02e-07 5.18e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 x* - x^k (float) 1.00e+00 2.00e+00 3.00e+00	0.9999979815290 1.9999979815290 2.99999979815290 3.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 9.9999979815290 x ^k (double) 1.00000005175564 2.00000005175564 3.0000005175564	(double) 2.02e-07 5.18e-08 5.18e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01
7 k	0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000	$ \begin{array}{c} ({\rm float}) \\ 1.00{\rm e}+00 \\ 2.00{\rm e}+00 \\ 3.00{\rm e}+00 \\ 3.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 5.00{\rm e}+00 \\ 6.00{\rm e}+00 \\ 7.00{\rm e}+00 \\ 8.00{\rm e}+00 \\ 9.00{\rm e}+00 \\ 1.00{\rm e}+01 \\ \\ x^*-x^k \\ ({\rm float}) \\ 1.00{\rm e}+00 \\ 2.00{\rm e}+00 \\ 3.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ \end{array} $	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 3.9999979815290 \\ 5.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ \end{array}$	$ \begin{array}{c} (\text{double}) \\ 2.02\text{e-}07 \\ 2.02\text{e-}08 \\ 5.18\text{e-}08 \\ 5.18\text{e-}08 \\ 5.18\text{e-}08 \\ 5.18\text{e-}08 \\ 5.18\text{e-}08 \\ 5.18\text{e-}08 \\ \end{array} $	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01 x* - x ^k (float) 1.00e+01 2.00e+00 3.00e+00 4.00e+00 5.00e+00 5.00e+00	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 7.9999979815290 \\ 9.9999979815290 \\ \hline x^k \ (double) \\ \\ x^k \ (double) \\ \\ \hline 1.00000005175564 \\ 2.00000005175564 \\ 4.00000005175564 \\ 5.00000005175663 \\ 5.00000005175564 \\ \hline \end{array}$	(double) 2.02e-07 2.102e-07 2.02e-07	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 1.00e+01 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 6.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 9.9999979815290 x ^k (double) 1.00000005175564 2.0000005175564 4.000000517564 5.00000005175664 6.0000005175664	(double) 2.02e-07 2.02e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000		0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 5.9999979815290 6.9999979815290 8.9999979815290 9.9999979815290 x ^k (double) 1.0000005175564 2.0000000517564 4.0000005175663 5.00000005175664 6.00000005175664 7.0000005175664	$ \begin{array}{c} (\text{double}) \\ 2.02\text{e-}07 \\ 2.02e-$	$\begin{array}{c} 0.0000000\\ 0.00000000$	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 4.00e+00 6.00e+00 7.00e+00 7.00e+00 7.00e+00
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 x* - x ^k (float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 6.00e+00 8.00e+00	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 7.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ \hline x^k \ (double) \\ \\ \hline x^k \ (double) \\ \\ \hline 1.00000005175564 \\ 2.0000005175564 \\ 3.0000005175564 \\ 6.0000005175564 \\ 6.0000005175564 \\ 8.0000005175564 \\ 8.0000005175664 \\ \hline \end{array}$	(double) 2.02e-07 2.102e-07 2.02e-07 2.	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 1.00e+01 1.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 8.00e+00 9.00e+00 8.00e+00 9.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 4.9999979815290 4.9999979815290 6.9999979815290 6.9999979815290 7.9999979815290 9.9999979815290 1.0000005175564 2.00000005175564 4.000000517564 6.0000005175564 7.0000005175564 8.0000005175564 9.0000005175564	(double) 2.02e-07 2.02e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 x* - x ^k (float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 6.00e+00 8.00e+00	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 7.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ \hline x^k \ (double) \\ \\ \hline x^k \ (double) \\ \\ \hline 1.00000005175564 \\ 2.0000005175564 \\ 3.0000005175564 \\ 6.0000005175564 \\ 6.0000005175564 \\ 8.0000005175564 \\ 8.0000005175664 \\ \hline \end{array}$	(double) 2.02e-07 2.102e-07 2.02e-07 2.	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 1.00e+01 1.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 8.00e+00 9.00e+00 8.00e+00 9.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 4.9999979815290 4.9999979815290 6.9999979815290 6.9999979815290 7.9999979815290 9.9999979815290 1.0000005175564 2.00000005175564 4.000000517564 6.0000005175564 7.0000005175564 8.0000005175564 9.0000005175564	(double) 2.02e-07 2.02e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 9.00e+00 9.00e+00
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 1.00e+01 1.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 8.00e+00 9.00e+00 8.00e+00 9.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 4.9999979815290 4.9999979815290 6.9999979815290 6.9999979815290 7.9999979815290 9.9999979815290 1.0000005175564 2.00000005175564 4.000000517564 6.0000005175564 7.0000005175564 8.0000005175564 9.0000005175564	(double) 2.02e-07 2.02e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 9.00e+00 9.00e+00
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 1.00e+01 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01	0.9999979815290 1.9999979815290 2.9999979815290 4.9999979815290 4.9999979815290 6.9999979815290 6.9999979815290 7.9999979815290 9.9999979815290 1.0000005175564 2.0000005175564 4.0000005175564 6.0000005175564 6.0000005175564 6.0000005175564 6.0000005175564 9.0000005175564 10.000005175564	(double) 2.02e-07 2.02e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
7 k	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 1.00e+01 2.00e+00 3.00e+00 4.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 1.00e+01	0.9999979815290 1.9999979815290 2.9999979815290 4.9999979815290 4.9999979815290 6.9999979815290 6.9999979815290 7.9999979815290 9.9999979815290 1.0000005175564 2.00000005175564 4.000000517564 6.0000005175564 7.0000005175564 8.0000005175564 9.0000005175564	(double) 2.02e-07 2.02e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01
7 k 8	0.0000000 0.00000000 0.00000000 0.00000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 x* - xk (float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 6.00e+00 1.00e+01 x* - xk (float)	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 3.9999979815290 \\ 5.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	(double) 2.02e-07 2.02e-08 5.18e-08 6.18e-08	$\begin{array}{c} 0.0000000\\ 0.000000\\ 0.000000\\ 0.000000\\ 0.0000000\\ 0.000000\\ 0.0000000\\ 0.0000000\\ 0.000000\\ 0.000000\\ 0.000000\\ 0.000000\\ 0.000000\\ 0.000000\\ 0.0000000\\ 0.0000000\\ 0.0000000\\ 0.0000000\\ 0.00000000$	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
7 k	0.0000000 0.00000000 0.00000000 0.00000000 0.0000000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 1.00e+01 2.00e+00 3.00e+00 1.00e+00 1.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 7.9999979815290 \\ 9.9999979815290 \\ 9.9999979815290 \\ 0.99999979815290 \\ 0.99999979815290 \\ 0.99999979815290 \\ 0.99999979815290 \\ 0.999999979815290 \\ 0.0000005175564 \\ 0.0000005175563 \\ 0.0000005175564 \\ 0.0000005175663 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.00000005175564 \\ 0.0000005175564 $	(double) 2.02e-07 2.02e-08 5.18e-08	$\begin{array}{c} 0.0000000\\ 0.00000000$	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+01 1.00e+01
7 k 8	0.0000000 0.00000000 0.00000000 0.00000000 0.0000000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 1.00e+01 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 1.00e+01 2.00e+00 1.00e+01 2.00e+00 1.00e+01 1.00e+01 2.00e+01 1.00e+01 1.00e+01	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 9.9999979815290 \\ 9.9999979815290 \\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	(double) 2.02e-07 2.02e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 6.00e+00 7.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 1.00e+00 1.00e+00 2.00e+00 1.00e+00 2.00e+00 2.00e+00 2.00e+00 3.00e+00 2.00e+00 3.00e+00 3.00e+00 2.00e+00 3.00e+00
7 k 8	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	$ \begin{array}{c} (\text{double}) \\ 2.02e-07 \\ 2.02e-08 \\ 5.18e-08 \\ $	$\begin{array}{c} 0.0000000\\ 0.00000000$	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01
7 k 8	0.0000000 0.00000000 0.00000000 0.00000000 0.00000000 0.0000000000	$\begin{array}{c} ({\rm float}) \\ 1.00{\rm e}+00 \\ 2.00{\rm e}+00 \\ 3.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 5.00{\rm e}+00 \\ 6.00{\rm e}+00 \\ 7.00{\rm e}+00 \\ 8.00{\rm e}+00 \\ 9.00{\rm e}+00 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+00 \\ 3.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 5.00{\rm e}+00 \\ 6.00{\rm e}+00 \\ 7.00{\rm e}+00 \\ 8.00{\rm e}+00 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+00 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+00 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+00 \\ $	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 7.9999979815290 \\ 9.9999979815290 \\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	(double) 2.02e-07 2.0	$\begin{array}{c} 0.0000000\\ 0.00000000$	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+01 1.00e+01
7 k 8	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 2.00e+00 3.00e+00 4.00e+00 3.00e+00 4.00e+00 5.00e+00 1.00e+01 2.00e+00 3.00e+00 4.00e+00 1.00e+01 2.00e+00 3.00e+00 3.00e+00 3.00e+00 4.00e+00 3.00e+00	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 7.9999979815290 \\ 9.9999979815290 \\ 9.9999979815290 \\ 1.0000005175564 \\ 2.00000005175564 \\ 3.0000005175564 \\ 4.0000005175564 \\ 4.0000005175564 \\ 4.0000005175564 \\ 10.000005175564 \\ 10.000005175564 \\ 10.000005175564 \\ 10.000005175564 \\ 10.000005175564 \\ 10.000005175564 \\ 10.000005175564 \\ 10.0000005175564 \\ 10.0000005175564 \\ 10.0000005175564 \\ 10.0000005175563 \\ \\ \hline x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	(double) 2.02e-07 2.0	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 6.00e+00 7.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+01 2.00e+00 3.00e+00 1.00e+01 3.00e+00 4.00e+00 1.00e+01 1.00e+01 2.00e+00 1.00e+01 3.00e+00 4.00e+00 5.00e+00 1.00e+00 5.00e+00 1.00e+00 5.00e+00 3.00e+00 4.00e+00 5.00e+00 5.00e+00
7 k 8	0.0000000 0.0000000 0.0000000 0.0000000 0.000000		$\begin{array}{c} 0.99999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 3.9999979815290 \\ 5.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ $	(double) 2.02e-07 2.02e-08 5.18e-08	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 6.00e+00 7.00e+00 8.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 3.00e+00 4.00e+00 6.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 3.00e+00 3.00e+00 3.00e+00 3.00e+00 5.00e+00 3.00e+00 5.00e+00 6.00e+00 6.00e+00 6.00e+00
7 k 8	0.0000000 0.00000000 0.00000000 0.00000000 0.00000000 0.0000000000	$\begin{array}{c} ({\rm float}) \\ 1.00{\rm e}+00 \\ 2.00{\rm e}+00 \\ 3.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 5.00{\rm e}+00 \\ 6.00{\rm e}+00 \\ 6.00{\rm e}+00 \\ 7.00{\rm e}+00 \\ 8.00{\rm e}+00 \\ 9.00{\rm e}+00 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 2.00{\rm e}+00 \\ 3.00{\rm e}+00 \\ 4.00{\rm e}+00 \\ 5.00{\rm e}+00 \\ 6.00{\rm e}+00 \\ 7.00{\rm e}+00 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+01 \\ 1.00{\rm e}+00 \\ $	$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 7.9999979815290 \\ 7.9999979815290 \\ 9.9999979815290 \\ \hline \\ x^k \ \ (double) \\ \hline \\ 1.0000005175564 \\ 2.0000005175564 \\ 3.0000005175564 \\ 3.0000005175564 \\ 6.0000005175564 \\ 8.0000005175564 \\ 9.0000005175564 \\ 10.000005175564 \\ 9.0000005175564 \\ 9.0000005175564 \\ 9.0000005175564 \\ 9.0000005175564 \\ 9.0000005175564 \\ 9.0000005175564 \\ 9.0000005175564 \\ 9.0000005175564 \\ 9.0000005175663 \\ \hline \\ x^k \ \ \ (double) \\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	(double) 2.02e-07 2.0	$\begin{array}{c} 0.0000000\\ 0.00000000$	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 1.00e+01
7 k 8	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 2.00e+00 3.00e+00 4.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 1.00e+01 x* - x ^k (float) 1.00e+00 2.00e+00 3.00e+00 1.00e+01 1.00e+01 2.00e+00 3.00e+00 1.00e+01 3.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 6.00e+00 6.00e+00 7.00e+00 8.00e+00 6.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 4.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290 9.9999979815290 1.0000005175564 1.00000005175564 1.0000005175564 1.00000005175564 1.0000005175564 1.00000005175564 1.00000005175564 1.00000005175564 1.0000000517566 1.0000000517566 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.0000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.00000000051756 1.000000051756 1.000000051756 1.0000000051756 1.000000051756 1.0000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.0000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.000000051756 1.000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.00000000051756 1.00000000051756 1.0000000051756 1.0000000051756 1.00000000051756 1.0000000051756 1.0000000051756 1.0000000000000051756 $1.000000000000000000000000000000000000$	(double) 2.02e-07 2.0	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 .00e+01 2.00e+00 3.00e+00 2.00e+00 3.00e+00 5.00e+00 6.00e+00 7.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00 1.00e+01 2.00e+00 1.00e+01 2.00e+00 3.00e+00 1.00e+01 2.00e+00 3.00e+00
7 k 8	0.0000000 0.0000000 0.0000000 0.0000000 0.000000		$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ 9.9999979815290 \\ 0.99999979815290 \\ 0.99999979815290 \\ 0.99999979815290 \\ 0.99999979815290 \\ 0.9999979815290 \\ 0.9999979815290 \\ 0.9999979815290 \\ 0.9000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175563 \\ 0.99995807816869 \\ 0.9995807816869 \\ 0.9$	$ \begin{array}{c} (\text{double}) \\ 2.02e-07 \\ $	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 x* - xk (mixed) 1.00e+00 3.00e+00 4.00e+00 5.00e+00 1.00e+01 x* - xk (mixed) 1.00e+00 3.00e+00 1.00e+01 3.00e+00 3.00e+00 6.00e+00 1.00e+00 1.00e+00 6.00e+00 1.00e+00 1.00e+00 9.00e+00 1.00e+00 6.00e+00 9.00e+00 1.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00
7 k 8	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(float) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 2.00e+00 3.00e+00 4.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 1.00e+01 x* - x ^k (float) 1.00e+00 2.00e+00 3.00e+00 1.00e+01 1.00e+01 2.00e+00 3.00e+00 1.00e+01 3.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 6.00e+00 6.00e+00 7.00e+00 8.00e+00 6.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00 8.00e+00	0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 4.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290 9.9999979815290 1.0000005175564 1.00000005175564 1.0000005175564 1.00000005175564 1.0000005175564 1.00000005175564 1.00000005175564 1.00000005175564 1.0000000517566 1.0000000517566 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.0000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.00000000051756 1.000000051756 1.000000051756 1.0000000051756 1.000000051756 1.0000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.0000000051756 1.000000051756 1.000000051756 1.000000051756 1.000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.000000051756 1.000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.0000000051756 1.00000000051756 1.00000000051756 1.0000000051756 1.0000000051756 1.00000000051756 1.0000000051756 1.0000000051756 1.0000000000000051756 $1.000000000000000000000000000000000000$	(double) 2.02e-07 2.0	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 2.00e+00 3.00e+00 3.00e+00 3.00e+00 3.00e+00 5.00e+00 6.00e+00 7.00e+00 1.00e+01
7 k 8	0.0000000 0.0000000 0.0000000 0.0000000 0.000000		$\begin{array}{c} 0.9999979815290 \\ 1.9999979815290 \\ 2.9999979815290 \\ 3.9999979815290 \\ 3.9999979815290 \\ 4.9999979815290 \\ 6.9999979815290 \\ 6.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ 8.9999979815290 \\ 9.9999979815290 \\ 9.9999979815290 \\ 0.99999979815290 \\ 0.99999979815290 \\ 0.99999979815290 \\ 0.99999979815290 \\ 0.9999979815290 \\ 0.9999979815290 \\ 0.9999979815290 \\ 0.9000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175564 \\ 0.0000005175563 \\ 0.99995807816869 \\ 0.9995807816869 \\ 0.9$	$ \begin{array}{c} (\text{double}) \\ 2.02e-07 \\ $	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	(mixed) 1.00e+00 2.00e+00 3.00e+00 4.00e+00 6.00e+00 7.00e+00 8.00e+00 1.00e+01 1.00e+01 x* - xk (mixed) 1.00e+00 3.00e+00 4.00e+00 5.00e+00 1.00e+01 x* - xk (mixed) 1.00e+00 3.00e+00 1.00e+01 3.00e+00 3.00e+00 6.00e+00 1.00e+00 1.00e+00 6.00e+00 1.00e+00 1.00e+00 9.00e+00 1.00e+00 6.00e+00 9.00e+00 1.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00 9.00e+00

k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
"	w (110d0)	(float)	w (454515)	(double)	w (minou)	(mixed)
10	0.0000000	1.00e+00	0.99969466675982	3.05e-04	0.0000000	1.00e+00
	0.0000000	2.00e+00	1.99969466675982	3.05e-04	0.0000000	2.00e+00
	0.0000000	3.00e+00	2.99969466675982	3.05e-04	0.0000000	3.00e+00
	0.0000000	4.00e+00	3.99969466675982	3.05e-04	0.0000000	4.00e+00
	0.0000000	5.00e+00	4.99969466675982	3.05e-04 3.05e-04	0.0000000	5.00e+00
	0.0000000	6.00e+00 7.00e+00	5.99969466675982 6.99969466675982	3.05e-04 3.05e-04	0.0000000	6.00e+00 7.00e+00
	0.0000000	8.00e+00	7.99969466675982	3.05e-04 3.05e-04	0.0000000	8.00e+00
	0.0000000	9.00e+00	8.99969466675982	3.05e-04	0.0000000	9.00e+00
	0.0000000	1.00e+01	9.99969466675982	3.05e-04	0.0000000	1.00e+01
k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
		(float)		(double)		(mixed)
11	0.0000000	1.00e+00	0.99297121298259	7.03e-03	0.0000000	1.00e+00
	0.0000000	2.00e+00	1.99297121298258	7.03e-03	0.0000000	2.00e+00
	0.0000000	3.00e+00	2.99297121298258	7.03e-03	0.0000000	3.00e+00
	0.0000000	4.00e+00 5.00e+00	3.99297121298258 4.99297121298258	7.03e-03 7.03e-03	0.0000000	4.00e+00 5.00e+00
	0.0000000	6.00e+00	5.99297121298258	7.03e-03 7.03e-03	0.0000000	6.00e+00
	0.0000000	7.00e+00	6.99297121298258	7.03e-03	0.0000000	7.00e+00
	0.0000000	8.00e+00	7.99297121298258	7.03e-03	0.0000000	8.00e+00
	0.0000000	9.00e+00	8.99297121298258	7.03e-03	0.0000000	9.00e+00
	0.0000000	1.00e+01	9.99297121298258	7.03e-03	0.0000000	1.00e+01
	1		<u> </u>		<u> </u>	
		, t				,
k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
<u> </u>	0.0000000	(float)	4 0405405:05:05:	(double)	0.0000000	(mixed)
12	0.0000000	1.00e+00	1.01351351351351	1.35e-02	0.0000000	1.00e+00
1	0.0000000	2.00e+00 3.00e+00	2.01351351351351 3.01351351351351	1.35e-02 1.35e-02	0.0000000	2.00e+00 3.00e+00
	0.0000000	4.00e+00	4.01351351351351	1.35e-02	0.0000000	4.00e+00
	0.0000000	5.00e+00	5.01351351351351	1.35e-02	0.0000000	5.00e+00
	0.0000000	6.00e+00	6.01351351351351	1.35e-02	0.0000000	6.00e+00
	0.0000000	7.00e+00	7.01351351351351	1.35e-02	0.0000000	7.00e+00
	0.0000000	8.00e+00	8.01351351351352	1.35e-02	0.0000000	8.00e+00
	0.0000000	9.00e+00	9.01351351351352	1.35e-02	0.0000000	9.00e+00
	0.0000000	1.00e+01	10.01351351351351	1.35e-02	0.0000000	1.00e+01
	I		I	1	L	
	xk (float)	$x^* - x^k$	k (1 11)	$x^* - x^k$	k (: 1)	$x^* - x^k$
k	x^{κ} (float)	x - x (float)	xk (double)	$\begin{array}{c c} x - x \\ \text{(double)} \end{array}$	x (mixed)	(mixed)
13	0.0000000	1.00e+00	0.95225464190981	4.77e-02	0.0000000	1.00e+00
	0.0000000	2.00e+00	1.95225464190981	4.77e-02	0.0000000	2.00e+00
	0.0000000	3.00e+00	2.95225464190981	4.77e-02	0.0000000	3.00e+00
	0.0000000	4.00e+00	3.95225464190981	4.77e-02	0.0000000	4.00e+00
	0.0000000	5.00e+00	4.95225464190981	4.77e-02	0.0000000	5.00e+00
	0.0000000	6.00e+00	5.95225464190981	4.77e-02	0.0000000	6.00e+00
	0.0000000	7.00e+00	6.95225464190981 7.95225464190982	4.77e-02 4.77e-02	0.0000000	7.00e+00
				1 4.//e-U2	0.0000000	
1	0.0000000	8.00e+00		1	0.0000000	8.00e+00
		8.00e+00 9.00e+00 1.00e+01	8.95225464190981 9.95225464190981	4.77e-02 4.77e-02	0.0000000	
	0.0000000 0.0000000	9.00e+00	8.95225464190981	4.77e-02		8.00e+00 9.00e+00
	0.0000000 0.0000000	9.00e+00	8.95225464190981	4.77e-02		8.00e+00 9.00e+00
k	0.0000000 0.0000000	9.00e+00 1.00e+01 $x^* - x^k$	8.95225464190981	$4.77e-02$ $4.77e-02$ $x^* - x^k$		8.00e+00 9.00e+00 1.00e+01 $x^* - x^k$
	0.000000 0.000000 0.0000000 x^k (float)	9.00e+00 1.00e+01 $x^* - x^k$ (float)		$4.77e-02$ $4.77e-02$ $x^* - x^k$ (double)	x^k (mixed)	8.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed)
k 14	0.000000 0.000000 0.000000 0.0000000 x ^k (float)	$\begin{array}{c} 9.00 \\ 1.00 \\ e+01 \\ \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \\ e+00 \\ \end{array}$	8.95225464190981 9.95225464190981 $x^k \text{ (double)}$ -0.77358490566038		$x^k \text{ (mixed)}$	8.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00
	0.0000000 0.0000000 0.0000000 x^k (float)	$\begin{array}{c} 9.00 \text{e+00} \\ 1.00 \text{e+01} \\ \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e+00} \\ 2.00 \text{e+00} \\ \end{array}$	8.95225464190981 9.95225464190981 $x^k \text{ (double)}$ -0.77358490566038 0.22641509433962	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ \end{array}$	$ \begin{array}{c c} x^k & \text{(mixed)} \\ \hline & 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ \end{array} $	$\begin{array}{c} 8.00 \text{e+}00 \\ 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ \end{array}$
	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	$\begin{array}{c} 9.00 \\ 1.00 \\ +01 \\ \hline \\ x^* - x^k \\ (\text{float}) \\ 1.00 \\ +00 \\ 2.00 \\ +00 \\ 3.00 \\ +00 \\ \end{array}$	x ^k (double) -0.77358490566038 0.22641509433962 1.22641509433962	$\begin{array}{c} 4.77\text{e-}02 \\ 4.77\text{e-}02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77\text{e+}00 \\ 1.77\text{e+}00 \\ 1.77\text{e+}00 \\ \end{array}$	x ^k (mixed) 0.0000000 0.0000000 0.0000000 0.000000	8.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00
	0.000000 0.0000000 0.0000000 0.0000000 0.000000	$\begin{array}{c} 9.00 \text{e+00} \\ 1.00 \text{e+01} \\ \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e+00} \\ 2.00 \text{e+00} \\ 3.00 \text{e+00} \\ 4.00 \text{e+00} \\ \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \text{(double)} \\ \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ \end{array}$		$\begin{array}{c} x^k \;\; ({\tt mixed}) \\ \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ \end{array}$	8.00e+00 9.00e+00 1.00e+01
	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	$\begin{array}{c} 9.00 \\ 1.00 \\ +01 \\ \hline \\ x^* - x^k \\ (\text{float}) \\ 1.00 \\ +00 \\ 2.00 \\ +00 \\ 3.00 \\ +00 \\ \end{array}$	x ^k (double) -0.77358490566038 0.22641509433962 1.22641509433962	$\begin{array}{c} 4.77\text{e-}02 \\ 4.77\text{e-}02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77\text{e+}00 \\ 1.77\text{e+}00 \\ 1.77\text{e+}00 \\ \end{array}$	x ^k (mixed) 0.0000000 0.0000000 0.0000000 0.000000	8.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 3.00e+00
	0.0000000 0.0000000 0.0000000 0.0000000 0.000000	$\begin{array}{c} 9.00 \text{e} + 00 \\ 1.00 \text{e} + 01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e} + 00 \\ 2.00 \text{e} + 00 \\ 3.00 \text{e} + 00 \\ 4.00 \text{e} + 00 \\ 5.00 \text{e} + 00 \\ \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 3.22641509433962 \\ 3.22641509433962 \\ \end{array}$	$ x^* - x^k $ (double) 1.77e+00 1.77e+00 1.77e+00 1.77e+00 1.77e+00	x ^k (mixed) 0.0000000 0.0000000 0.0000000 0.000000	8.00e+00 9.00e+00 1.00e+01
	$ \begin{array}{c} 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ \end{array} $ $ \begin{array}{c} x^k \text{ (float)} \\ \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ \end{array} $	$\begin{array}{c} 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 3.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 6.22641509433962 \\ 6.22641509433962 \\ \end{array}$	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ 1.77$	x ^k (mixed) 0.000000 0.000000 0.000000 0.000000 0.000000	x* - x ^k (mixed) 1.00e+00 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00
	$\begin{array}{c} 0.0000000\\ 0.0000000\\ 0.0000000\\ \end{array}$	$\begin{array}{c} 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 4.00 \text{e+}00 \\ 5.00 \text{e+}00 \\ 6.00 \text{e+}00 \\ 7.00 \text{e+}00 \\ 8.00 \text{e+}00 \\ 9.00 \text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 5.22641509433962 \\ 6.22641509433962 \\ 7.22641509433962 \\ \hline \\ 7.22641509433962 \\ \hline \end{array}$	$\begin{array}{c} 4.77\text{e-}02 \\ 4.77\text{e-}02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77\text{e+}00 \\ 1.$	x ^k (mixed) 0.000000 0.000000 0.000000 0.000000 0.000000	$\begin{array}{c} 8.00 \text{e+}00 \\ 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 4.00 \text{e+}00 \\ 5.00 \text{e+}00 \\ 6.00 \text{e+}00 \\ 7.00 \text{e+}00 \\ 8.00 \text{e+}00 \\ 9.00 \text{e+}00 \\ \end{array}$
	$\begin{array}{c} 0.0000000\\ 0.0000000\\ 0.0000000\\ 0.0000000\\ \end{array}$	$\begin{array}{c} 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 4.00 \text{e+}00 \\ 5.00 \text{e+}00 \\ 6.00 \text{e+}00 \\ 7.00 \text{e+}00 \\ 8.00 \text{e+}00 \\ \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 3.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 6.22641509433962 \\ 6.22641509433962 \\ \end{array}$	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ 1.77$	x ^k (mixed) 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000	8.00e+00 9.00e+00 1.00e+01
	$\begin{array}{c} 0.0000000\\ 0.0000000\\ 0.0000000\\ \end{array}$	$\begin{array}{c} 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 4.00 \text{e+}00 \\ 5.00 \text{e+}00 \\ 6.00 \text{e+}00 \\ 7.00 \text{e+}00 \\ 8.00 \text{e+}00 \\ 9.00 \text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 5.22641509433962 \\ 6.22641509433962 \\ 7.22641509433962 \\ \hline \\ 7.22641509433962 \\ \hline \end{array}$	$\begin{array}{c} 4.77\text{e-}02 \\ 4.77\text{e-}02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77\text{e+}00 \\ 1.$	x ^k (mixed) 0.000000 0.000000 0.000000 0.000000 0.000000	$\begin{array}{c} 8.00 \text{e+}00 \\ 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 4.00 \text{e+}00 \\ 5.00 \text{e+}00 \\ 6.00 \text{e+}00 \\ 7.00 \text{e+}00 \\ 8.00 \text{e+}00 \\ 9.00 \text{e+}00 \\ \end{array}$
14	$\begin{array}{c} 0.0000000\\ 0.0000000\\ 0.0000000\\ 0.0000000\\ \end{array}$	$\begin{array}{c} 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 4.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 7.22641509433962 \\ 8.22641509433962 \\ 8.22641509433962 \\ \hline \end{array}$	$\begin{array}{c} 4.77\text{e-}02 \\ 4.77\text{e-}02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77\text{e+}00 \\ 1.$	x ^k (mixed) 0.0000000 0.0000000 0.0000000 0.000000	$\begin{array}{c} 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ 1.00\text{e+}01 \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \end{array}$
	$\begin{array}{c} 0.0000000\\ 0.0000000\\ 0.0000000\\ \end{array}$	$\begin{array}{c} 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 4.00 \text{e+}00 \\ 5.00 \text{e+}00 \\ 6.00 \text{e+}00 \\ 7.00 \text{e+}00 \\ 8.00 \text{e+}00 \\ 9.00 \text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 5.22641509433962 \\ 6.22641509433962 \\ 7.22641509433962 \\ \hline \\ 7.22641509433962 \\ \hline \end{array}$	$\begin{array}{c} 4.77\text{e-}02 \\ 4.77\text{e-}02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77\text{e+}00 \\ 1.$	x ^k (mixed) 0.000000 0.000000 0.000000 0.000000 0.000000	$\begin{array}{c} 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ 1.00\text{e+}01 \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 9.00\text{e+}00 \\ \hline \end{array}$
14	$\begin{array}{c} 0.0000000\\ 0.00000000$	$\begin{array}{c} 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 3.22641509433962 \\ 4.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 7.22641509433962 \\ 8.22641509433962 \\ \hline \\ x^k \ \text{(double)} \\ \hline \\ -8.3750000000000000 \\ \hline \end{array}$	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ 1.78 \text{e+} 00 \\ \end{array}$	$\begin{array}{c} x^k \pmod \\ \hline x^k \pmod \\ \hline 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ \hline x^k \pmod \\ \hline x^k \pmod \\ \hline 0.0000000 \\ \hline \end{array}$	8.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 2.00e+00 4.00e+00 5.00e+00 6.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+01
14	$\begin{array}{c} 0.0000000\\ 0.0000000\\ 0.0000000\\ 0.0000000\\ \end{array}$	$\begin{array}{c} 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ & (\text{double}) \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 4.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 7.22641509433962 \\ 8.22641509433962 \\ \hline \\ x^k \ & (\text{double}) \\ \hline \\ x^k \ & (\text{double}) \\ \hline \\ -8.375000000000000 \\ -7.375000000000000 \\ \hline \end{array}$	$\begin{array}{c} 4.77\text{e}-02 \\ 4.77\text{e}-02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77\text{e}+00 \\ 1.78\text{e}+00 \\ 1.$	$\begin{array}{c} x^k \;\; (\texttt{mixed}) \\ \hline \\ x^k \;\; (\texttt{mixed}) \\ \hline \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ \end{array}$	$\begin{array}{c} 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ \hline \end{array}$
14	$\begin{array}{c} 0.0000000\\ 0.0000000\\ 0.0000000\\ 0.0000000\\ \end{array}$	$\begin{array}{c} 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 4.00 \text{e+}00 \\ 5.00 \text{e+}00 \\ 6.00 \text{e+}00 \\ 7.00 \text{e+}00 \\ 8.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 3.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 6.22641509433962 \\ 7.22641509433962 \\ 8.22641509433962 \\ \hline \\ x^k \ \text{(double)} \\ \hline \\ x^k \ \text{(double)} \\ \hline \\ -8.37500000000000 \\ -6.37500000000000 \\ \hline \\ -6.3750000000000000 \\ \hline \end{array}$	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ 1.78 \text{e+} 00 \\ 0.38 \text{e+} 00 \\ 9.38 \text{e+} 00 \\ 9.38 \text{e+} 00 \\ 9.38 \text{e+} 00 \\ 9.38 \text{e+} 00 \end{array}$	$\begin{array}{c} x^k \;\; (\texttt{mixed}) \\ \hline x^k \;\; (\texttt{mixed}) \\ \hline 0.0000000 \\ \end{array}$	$\begin{array}{c} 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 3.00\text{e+}00 \\ \hline \end{array}$
14	$\begin{array}{c} 0.0000000\\ 0.00000000$	$\begin{array}{c} 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 4.00\text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ & (\text{double}) \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 3.22641509433962 \\ 4.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 6.22641509433962 \\ 8.22641509433962 \\ \hline \\ x^k \ & (\text{double}) \\ \hline \\ x^k \ & (\text{double}) \\ \hline \\ -8.37500000000000 \\ -7.3750000000000 \\ -5.37500000000000 \\ -5.37500000000000 \\ \hline \end{array}$	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ 1.78 \text{e+} 00 \\ 0.38 \text{e+} 00 \\ 9.38 \text{e+} 00 \\ 9.38$	$\begin{array}{c} x^k \pmod \\ x^k \pmod \\ 0.00000000$	x* - x ^k (mixed) 1.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 1.00e+00 3.00e+00 4.00e+00 3.00e+00 3.00e+00 4.00e+00 3.00e+00 4.00e+00 3.00e+00 4.00e+00 3.00e+00 4.00e+00
14	$\begin{array}{c} 0.0000000\\ 0.00000000$	$\begin{array}{c} 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 5.00\text{e+}00 \\ 5.00\text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ & (\text{double}) \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 4.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 7.22641509433962 \\ 8.22641509433962 \\ \hline \\ x^k \ & (\text{double}) \\ \hline \\ x^k \ & (\text{double}) \\ \hline \\ -8.375000000000000 \\ -6.37500000000000 \\ -6.37500000000000 \\ -4.37500000000000 \\ -4.37500000000000 \\ \hline \end{array}$	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \\ \\ \\ x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ 1.78 \text{e+} 00 \\ 9.38 $	x ^k (mixed) 0.0000000 0.0000000 0.0000000	$\begin{array}{c} 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ \hline \end{array}$
14	$\begin{array}{c} 0.0000000\\ 0.00000000$	$\begin{array}{c} 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 4.00\text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ & (\text{double}) \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 3.22641509433962 \\ 4.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 6.22641509433962 \\ 8.22641509433962 \\ \hline \\ x^k \ & (\text{double}) \\ \hline \\ x^k \ & (\text{double}) \\ \hline \\ -8.37500000000000 \\ -7.3750000000000 \\ -5.37500000000000 \\ -5.37500000000000 \\ \hline \end{array}$	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \end{array}$ $\begin{array}{c} x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ 1.78 \text{e+} 00 \\ 0.38 \text{e+} 00 \\ 9.38 \text{e+} 00 \\ 9.38$	$\begin{array}{c} x^k \pmod \\ x^k \pmod \\ 0.00000000$	x* - x ^k (mixed) 1.00e+00 3.00e+00 4.00e+00 5.00e+00 6.00e+00 7.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed)
14	$\begin{array}{c} 0.0000000\\ 0.00000000$	$\begin{array}{c} 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 4.00 \text{e+}00 \\ 5.00 \text{e+}00 \\ 6.00 \text{e+}00 \\ 7.00 \text{e+}00 \\ 9.00 \text{e+}00 \\ 1.00 \text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ \hline \\ 1.00 \text{e+}00 \\ 2.00 \text{e+}00 \\ 3.00 \text{e+}00 \\ 4.00 \text{e+}00 \\ \hline \\ 5.00 \text{e+}00 \\ 6.00 \text{e+}00 \\ \hline \end{array}$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \text{(double)} \\ \hline \\ -0.77358490566038 \\ 0.22641509433962 \\ 1.22641509433962 \\ 2.22641509433962 \\ 3.22641509433962 \\ 4.22641509433962 \\ 5.22641509433962 \\ 7.22641509433962 \\ 8.22641509433962 \\ \hline \\ x^k \ \text{(double)} \\ \hline \\ x^k \ \text{(double)} \\ \hline \\ -8.37500000000000 \\ -5.37500000000000 \\ -4.37500000000000 \\ -3.37500000000000 \\ -3.37500000000000 \\ -3.37500000000000 \\ -3.37500000000000 \\ -3.37500000000000 \\ -3.375000000000000 \\ -3.375000000000000 \\ -3.375000000000000 \\ -3.3750000000000000 \\ -3.3750000000000000 \\ -3.37500000000000000 \\ -3.375000000000000000 \\ -3.3750000000000000000 \\ -3.37500000000000000000000000000000000000$	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \\ \hline \\ x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ 9.38 $	$\begin{array}{c} x^k \;\; (\texttt{mixed}) \\ \hline \\ x^k \;\; (\texttt{mixed}) \\ \hline \\ 0.00000000$	$\begin{array}{c} 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ \hline \end{array}$
14	$\begin{array}{c} 0.0000000\\ 0.00000000$	$\begin{array}{c} 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 6.00\text{e+}00 \\ 6.0$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ $	$\begin{array}{c} 4.77\text{e}-02\\ 4.77\text{e}-02\\ 4.77\text{e}-02\\ \\ \hline \\ x^*-x^k\\ (\text{double})\\ 1.77\text{e}+00\\ 9.38\text{e}+00\\ 9.38\text{e}+$	$\begin{array}{c} x^k \;\; (\texttt{mixed}) \\ \hline \\ x^k \;\; (\texttt{mixed}) \\ \hline \\ 0.0000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.0000000 \\ 0.00000000$	x* - x ^k (mixed) 1.00e+00 3.00e+00 1.00e+00 2.00e+00 3.00e+00 4.00e+00 5.00e+00 9.00e+00 1.00e+01 x* - x ^k (mixed) 2.00e+00 3.00e+00 3.00e+00 3.00e+00 4.00e+00 3.00e+00 3.00e+00 6.00e+00 7.00e+00 6.00e+00 7.00e+00 7.00e+00 7.00e+00
14	$\begin{array}{c} 0.0000000\\ 0.00000000$	$\begin{array}{c} 9.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 4.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 7.00\text{e+}00 \\ 8.00\text{e+}00 \\ 1.00\text{e+}01 \\ \hline \\ x^* - x^k \\ \text{(float)} \\ \hline \\ 1.00\text{e+}00 \\ 2.00\text{e+}00 \\ 3.00\text{e+}00 \\ 3.00\text{e+}00 \\ 5.00\text{e+}00 \\ 6.00\text{e+}00 \\ 6.00\text{e+}00 \\ 6.00\text{e+}00 \\ 8.00\text{e+}00 \\ 8.0$	$\begin{array}{c} 8.95225464190981 \\ 9.95225464190981 \\ \hline \\ x^k \ \ $	$\begin{array}{c} 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ 4.77 \text{e-} 02 \\ \\ \hline \\ x^* - x^k \\ \text{(double)} \\ 1.77 \text{e+} 00 \\ 1.78 \text{e+} 00 \\ 9.38 $	x ^k (mixed) 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000	$\begin{array}{c} 8.00 \text{e}+00 \\ 9.00 \text{e}+00 \\ 1.00 \text{e}+01 \\ \hline \\ 1.00 \text{e}+01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00 \text{e}+00 \\ 2.00 \text{e}+00 \\ 3.00 \text{e}+00 \\ 4.00 \text{e}+00 \\ 5.00 \text{e}+00 \\ 7.00 \text{e}+00 \\ 8.00 \text{e}+00 \\ 1.00 \text{e}+01 \\ \hline \\ x^* - x^k \\ \text{(mixed)} \\ \hline \\ 1.00 \text{e}+01 \\ \hline \\ 1.00 \text{e}+00 \\ 2.00 \text{e}+00 \\ 3.00 \text{e}+00 \\ 5.00 \text{e}+00 \\ 5.00 \text{e}+00 \\ 6.00 \text{e}+00 \\ 7.00 \text{e}+00 \\ 8.00 \text{e}+00 \\ 8.00 \text{e}+00 \\ \hline \end{array}$

(float) (double) 16 0.0000000 1.00e+00 -8.37500000000000 9.38e+00 0.000000 0.0000000 2.00e+00 -7.37500000000000 9.38e+00 0.000000 0.0000000 3.00e+00 -6.37500000000000 9.38e+00 0.000000 0.0000000 4.00e+00 -5.37500000000000 9.38e+00 0.000000 0.0000000 5.00e+00 -4.3750000000000 9.38e+00 0.000000 0.0000000 6.00e+00 -3.3750000000000 9.38e+00 0.000000 0.0000000 7.00e+00 -2.3750000000000 9.38e+00 0.000000 0.0000000 8.00e+00 -1.3750000000000 9.38e+00 0.000000 0.0000000 1.00e+01 -0.6250000000000 9.38e+00 0.000000 0.0000000 1.00e+01 -0.6250000000000 9.38e+00 0.000000	$x^* - x^k$
0.000000 2.00e+00 -7.37500000000000 9.38e+00 0.000000 0.000000 3.00e+00 -6.37500000000000 9.38e+00 0.000000 0.000000 4.00e+00 -5.37500000000000 9.38e+00 0.000000 0.000000 5.00e+00 -4.3750000000000 9.38e+00 0.000000 0.000000 6.00e+00 -3.37500000000000 9.38e+00 0.000000 0.000000 7.00e+00 -2.37500000000000 9.38e+00 0.000000 0.000000 8.00e+00 -1.37500000000000 9.38e+00 0.0000000 0.000000 9.00e+00 -0.37500000000000 9.38e+00 0.0000000	(mixed)
0.0000000 3.00e+00 -6.37500000000000 9.38e+00 0.0000000 0.0000000 4.00e+00 -5.37500000000000 9.38e+00 0.0000000 0.000000 5.00e+00 -4.37500000000000 9.38e+00 0.0000000 0.000000 6.00e+00 -3.37500000000000 9.38e+00 0.000000 0.0000000 7.00e+00 -2.37500000000000 9.38e+00 0.000000 0.0000000 8.00e+00 -1.37500000000000 9.38e+00 0.0000000 0.0000000 9.00e+00 -0.37500000000000 9.38e+00 0.0000000	1.00e+00
0.0000000 4.00e+00 -5.37500000000000 9.38e+00 0.0000000 0.0000000 5.00e+00 -4.37500000000000 9.38e+00 0.0000000 0.0000000 6.00e+00 -3.37500000000000 9.38e+00 0.0000000 0.0000000 7.00e+00 -2.37500000000000 9.38e+00 0.0000000 0.0000000 8.00e+00 -1.37500000000000 9.38e+00 0.0000000 0.0000000 9.00e+00 -0.37500000000000 9.38e+00 0.0000000	2.00e+00
0.0000000 5.00e+00 -4.37500000000000 9.38e+00 0.0000000 0.0000000 6.00e+00 -3.37500000000000 9.38e+00 0.0000000 0.0000000 7.00e+00 -2.37500000000000 9.38e+00 0.000000 0.0000000 8.00e+00 -1.37500000000000 9.38e+00 0.0000000 0.0000000 9.00e+00 -0.37500000000000 9.38e+00 0.0000000	3.00e+00
0.0000000 6.00e+00 -3.37500000000000 9.38e+00 0.000000 0.0000000 7.00e+00 -2.37500000000000 9.38e+00 0.000000 0.000000 8.00e+00 -1.3750000000000 9.38e+00 0.000000 0.000000 9.00e+00 -0.3750000000000 9.38e+00 0.000000	4.00e+00
0.0000000 7.00e+00 -2.37500000000000 9.38e+00 0.000000 0.000000 8.00e+00 -1.3750000000000 9.38e+00 0.000000 0.0000000 9.00e+00 -0.3750000000000 9.38e+00 0.000000	5.00e+00
0.0000000 8.00e+00 -1.37500000000000 9.38e+00 0.000000 0.0000000 9.00e+00 -0.3750000000000 9.38e+00 0.000000	6.00e+00
0.0000000 9.00e+00 -0.3750000000000 9.38e+00 0.0000000	7.00e+00
	8.00e+00
0.0000000	9.00e+00
0.0000000	1.00e+01

k	x^k (float)	$x^* - x^k$	x^k (double)	$x^* - x^k$	x^k (mixed)	$x^* - x^k$
		(float)		(double)		(mixed)
17	0.0000000	1.00e+00	-8.37500000000000	9.38e+00	0.0000000	1.00e+00
	0.0000000	2.00e+00	-7.37500000000000	9.38e+00	0.0000000	2.00e+00
	0.0000000	3.00e+00	-6.37500000000000	9.38e+00	0.0000000	3.00e+00
	0.0000000	4.00e+00	-5.37500000000000	9.38e+00	0.0000000	4.00e+00
	0.0000000	5.00e+00	-4.37500000000000	9.38e+00	0.0000000	5.00e+00
	0.0000000	6.00e+00	-3.37500000000000	9.38e+00	0.0000000	6.00e+00
	0.0000000	7.00e+00	-2.37500000000000	9.38e+00	0.0000000	7.00e+00
	0.0000000	8.00e+00	-1.37500000000000	9.38e+00	0.0000000	8.00e+00
	0.0000000	9.00e+00	-0.37500000000000	9.38e+00	0.0000000	9.00e+00
	0.0000000	1.00e+01	0.62500000000000	9.38e+00	0.0000000	1.00e+01

6 Матрицы Гильберта

Матрицы Гильберта LU(sq)-разложимы лишь до размерности 7×7 включительно при выполнении операций с одинарной точностью и до размерности 13×13 включительно при выполнении операций с двойной точностью:

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
2	0.9999996	3.58e-07	1.00000000000000	8.88e-16
	2.0000007	7.15e-07	2.00000000000000	1.55e-15

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
3	1.0000013	1.31e-06	1.00000000000001	5.11e-15
	1.9999903	9.66e-06	1.9999999999997	2.69e-14
	3.0000105	1.05e-05	3.000000000000002	2.49e-14

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
4	1.0000286	2.86e-05	1.00000000000000	3.55e-15
	1.9996785	3.22e-04	2.000000000000002	1.69e-14
	3.0007720	7.72e-04	2.9999999999999	1.47e-14
	3.9994998	5.00e-04	4.00000000000000	-0.00e+00

Г	k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
		(float)	(float)		(double)
Г	5	1.0003469	3.47e-04	1.00000000000008	7.90e-14
		1.9937348	6.27e-03	1.9999999999894	1.06e-12
		3.0264177	2.64e-02	3.0000000000331	3.31e-12
		3.9607248	3.93e-02	3.9999999999642	3.58e-12
		5.0189919	1.90e-02	5.0000000000122	1.22e-12

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
6	0.9984632	1.54e-03	0.999999999993	7.02e-14
	2.0473156	4.73e-02	1.9999999999842	1.58e-12
	2.6663623	3.34e-01	3.00000000002614	2.61e-11
	4.8909559	8.91e-01	3.9999999990377	9.62e-11
	3.9984283	1.00e+00	5.0000000012950	1.30e-10
	6.3999996	4.00e-01	5.9999999994183	5.82e-11

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
7	0.9992723	7.28e-04	0.9999999998803	1.20e-11
	2.0246377	2.46e-02	2.00000000049574	4.96e-10
	2.8071361	1.93e-01	2.99999999514031	4.86e-09
	4.5990376	5.99e-01	4.00000001906581	1.91e-08
	4.1347313	8.65e-01	4.99999996486987	3.51e-08
	6.5783944	5.78e-01	6.00000003044316	3.04e-08
	6.8571434	1.43e-01	6.99999998998800	1.00e-08

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
8	0.0000000	0.00e+00	0.9999999985916	1.41e-10
	0.0000000	0.00e+00	2.00000000749003	7.49e-09
	0.0000000	0.00e+00	2.99999990290675	9.71e-08
	0.0000000	0.00e+00	4.00000052211414	5.22e-07
	0.0000000	0.00e+00	4.99999860200145	1.40e-06
	0.0000000	0.00e+00	6.00000196882290	1.97e-06
	0.0000000	0.00e+00	6.99999860459131	1.40e-06
	0.0000000	0.00e+00	8.00000039230692	3.92e-07

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
9	0.0000000	0.00e+00	0.99999999892004	1.08e-09
	0.0000000	0.00e+00	2.00000007322233	7.32e-08
	0.0000000	0.00e+00	2.99999877635260	1.22e-06
	0.0000000	0.00e+00	4.00000865084073	8.65e-06
	0.0000000	0.00e+00	4.99996851247912	3.15e-05
	0.0000000	0.00e+00	6.00006389067009	6.39e-05
	0.0000000	0.00e+00	6.99992700555446	7.30e-05
	0.0000000	0.00e+00	8.00004389613926	4.39e-05
	0.0000000	0.00e+00	8.99998919514688	1.08e-05

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
10	0.0000000	0.00e+00	0.99999998609260	1.39e-08
	0.0000000	0.00e+00	2.00000119674563	1.20e-06
	0.0000000	0.00e+00	2.99997458502670	2.54e-05
	0.0000000	0.00e+00	4.00023053425483	2.31e-04
	0.0000000	0.00e+00	4.99890229763475	1.10e-03
	0.0000000	0.00e+00	6.00301340599289	3.01e-03
	0.0000000	0.00e+00	6.99506150482201	4.94e-03
	0.0000000	0.00e+00	8.00476800164093	4.77e-03
	0.0000000	0.00e+00	8.99749882314255	2.50e-03
	0.0000000	0.00e+00	10.00054967415291	5.50e-04

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
11	0.0000000	0.00e+00	1.00000005068484	5.07e-08
	0.0000000	0.00e+00	1.99999447710151	5.52e-06
	0.0000000	0.00e+00	3.00014770996645	1.48e-04
	0.0000000	0.00e+00	3.99830839167995	1.69e-03
	0.0000000	0.00e+00	5.01027549461812	1.03e-02
	0.0000000	0.00e+00	5.96328770296953	3.67e-02
	0.0000000	0.00e+00	7.08102145616306	8.10e-02
	0.0000000	0.00e+00	7.88826636310728	1.12e-01
	0.0000000	0.00e+00	9.09373717168260	9.37e-02
	0.0000000	0.00e+00	9.95625368503899	4.37e-02
	0.0000000	0.00e+00	11.00870753959999	8.71e-03

x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
(float)	(float)		(double)
0.0000000	0.00e+00	1.00000026746263	2.67e-07
0.0000000	0.00e+00	1.99996656535632	3.34e-05
0.0000000	0.00e+00	3.00103845393522	1.04e-03
0.0000000	0.00e+00	3.98600845942420	1.40e-02
0.0000000	0.00e+00	5.10154734310068	1.02e-01
0.0000000	0.00e+00	5.55781874634493	4.42e-01
0.0000000	0.00e+00	8.22209147855427	1.22e+00
0.0000000	0.00e+00	5.80399874340334	2.20e+00
0.0000000	0.00e+00	11.55747529894862	2.56e+00
0.0000000	0.00e+00	8.13826858204653	1.86e+00
0.0000000	0.00e+00	11.76977705348522	7.70e-01
0.0000000	0.00e+00	11.86200886048369	1.38e-01
	0.000000 0.000000 0.000000 0.000000 0.000000	(float) (float) 0.0000000 0.00e+00	(float) (float) 0.0000000 0.00e+00 1.0000026746263 0.0000000 0.00e+00 1.99996656535632 0.0000000 0.00e+00 3.00103845393522 0.0000000 0.00e+00 3.98600845942420 0.0000000 0.00e+00 5.10154734310068 0.0000000 0.00e+00 5.55781874634493 0.0000000 0.00e+00 8.22209147855427 0.0000000 0.00e+00 5.80399874340334 0.0000000 0.00e+00 11.55747529894862 0.0000000 0.00e+00 11.76977705348522

k	x^k	$x^* - x^k$	x^k (double)	$x^* - x^k$
	(float)	(float)		(double)
13	0.0000000	0.00e+00	0.99999917751859	8.22e-07
	0.0000000	0.00e+00	2.00012800231446	1.28e-04
	0.0000000	0.00e+00	2.99508603017487	4.91e-03
	0.0000000	0.00e+00	4.08165318247801	8.17e-02
	0.0000000	0.00e+00	4.26730954728013	7.33e-01
	0.0000000	0.00e+00	9.97442081572100	3.97e+00
	0.0000000	0.00e+00	-6.87273932572089	1.39e+01
	0.0000000	0.00e+00	40.19311952297388	3.22e+01
	0.0000000	0.00e+00	-41.18190264730911	5.02e+01
	0.0000000	0.00e+00	61.92479242022549	5.19e+01
	0.0000000	0.00e+00	-23.19931599522701	3.42e+01
	0.0000000	0.00e+00	24.97625505286563	1.30e+01
	0.0000000	0.00e+00	10.84119345524543	2.16e+00

7 Расчёт количества действий

Если n - размерность плотной матрицы, то, в случае плотной матрицы, для решения СЛАУ методом LU(sq)-разложения, необходимо совершить следующие действия:

- 1. При получении разложения:
 - (a) При расчёте q_i : $\sum_{i=1}^n (2(i-1)+1)-1=n^2-1$ операций
 - (b) При расчёте l_{ij} : $\sum_{i=1}^n \sum_{j=1}^{i-1} (2+2*(j-1)) = \frac{n^3}{3} \frac{n}{3}$ операций
 - (c) Аналогично, при расчёте u_{ij} выполняется $\frac{n^3}{3} \frac{n}{3}$ операций

Итого сложность LU(sq)-разложения $\frac{2n^3}{3} + n^2 - \frac{2n}{3} - 1$

- 2. На прямом ходу: $\sum_{i=1}^{n} (2 + 2 * i 1) = n^2 + n$ операций
- 3. Аналогично, на обратном ходу n^2+n операций

Итого для алгоритма требуется $\frac{2n^3}{3} + 3n^2 + \frac{4n}{3}$ операций

8 Сравнение с методом Гаусса

Сложность метода Гаусса:
$$\sum_{i=1}^{n} (1 + \sum_{j=i}^{n} (2j)) + (n+1)^2 - 1 = \frac{2n^3}{3} + 5n^2 + 6n + 4$$

k	x^k (LU(sq))	$x^* - x^k$	x^k (Gauss)	$x^* - x^k$
		(LU(sq))		(Gauss)
0	0.999999999995	5.38e-14	1.00000000000008	7.55e-14
	1.9999999999994	6.13e-14	2.00000000000009	8.62e-14
	2.9999999999994	6.04e-14	3.00000000000008	8.48e-14
	3.9999999999994	6.13e-14	4.00000000000008	8.44e-14
	4.9999999999994	6.13e-14	5.00000000000009	8.53e-14
	5.999999999994	6.04e-14	6.00000000000009	8.53e-14
	6.9999999999994	6.31e-14	7.00000000000009	8.70e-14
	7.9999999999994	6.13e-14	8.00000000000009	8.53e-14
	8.999999999994	6.22e-14	9.00000000000009	8.88e-14
	9.999999999994	6.39e-14	10.000000000000009	8.53e-14

k	x^k (LU(sq))	$x^* - x^k$	xk (Gauss)	$x^* - x^k$
		(LU(sq))		(Gauss)
2	1.0000000000052	5.20e-13	0.999999999551	4.49e-12
	2.0000000000052	5.21e-13	1.9999999999550	4.50e-12
	3.0000000000052	5.21e-13	2.999999999550	4.50e-12
	4.00000000000052	5.20e-13	3.9999999999550	4.50e-12
	5.0000000000052	5.21e-13	4.9999999999550	4.50e-12
	6.0000000000052	5.20e-13	5.999999999550	4.50e-12
	7.0000000000052	5.20e-13	6.999999999550	4.50e-12
	8.0000000000052	5.20e-13	7.999999999550	4.50e-12
	9.0000000000052	5.22e-13	8.999999999550	4.50e-12
	10.00000000000052	5.22e-13	9.999999999550	4.50e-12

k	x^k (LU(sq))	$x^* - x^k$	x^k (Gauss)	$x^* - x^k$
		(LU(sq))		(Gauss)
1	0.9999999999973	2.72e-13	1.000000000000060	6.00e-13
	1.9999999999972	2.75e-13	2.00000000000061	6.08e-13
	2.9999999999973	2.74e-13	3.00000000000061	6.06e-13
	3.9999999999973	2.75e-13	4.00000000000061	6.06e-13
	4.9999999999973	2.74e-13	5.00000000000061	6.08e-13
	5.9999999999972	2.76e-13	6.00000000000061	6.07e-13
	6.9999999999972	2.77e-13	7.00000000000061	6.13e-13
	7.9999999999972	2.75e-13	8.00000000000061	6.08e-13
	8.9999999999972	2.75e-13	9.00000000000061	6.08e-13
	9.999999999973	2.74e-13	10.00000000000061	6.08e-13

k 3	x^k (LU(sq))	$x^* - x^k$	xk (Gauss)						$x^* - x^k$
			r" (Cance)	$x^* - x^k$	k	x^k (LU(sq))	$x^* - x^k$	x^k (Gauss)	
_	ж (до(вф//		w (ddass)		A	ж (до(вф))		æ (ddass)	
2		(LU(sq))		(Gauss)			(LU(sq))		(Gauss)
	0.9999999993319	6.68e-11	1.0000000014227	1.42e-10	9	0.99995807816869	4.19e-05	0.99996012927167	3.99e-05
٠ ا					"				
	1.9999999993318	6.68e-11	2.0000000014229	1.42e-10		1.99995807816869	4.19e-05	1.99996012927166	3.99e-05
	2.9999999993318	6.68e-11	3.0000000014229	1.42e-10		2.99995807816869	4.19e-05	2.99996012927166	3.99e-05
- 1	3.9999999993318	6.68e-11	4.0000000014229	1.42e-10		3.99995807816869	4.19e-05	3.99996012927167	3.99e-05
	4.9999999993318	6.68e-11	5.0000000014229	1.42e-10		4.99995807816869	4.19e-05	4.99996012927166	3.99e-05
	5.99999999993318					5.99995807816869		5.99996012927166	
		6.68e-11	6.0000000014230	1.42e-10			4.19e-05		3.99e-05
	6.9999999993317	6.68e-11	7.0000000014230	1.42e-10		6.99995807816869	4.19e-05	6.99996012927166	3.99e-05
	7.9999999993318	6.68e-11	8.0000000014229	1.42e-10		7.99995807816869	4.19e-05	7.99996012927167	3.99e-05
	8.9999999993318	6.68e-11	9.0000000014230	1.42e-10		8.99995807816869	4.19e-05	8.99996012927167	3.99e-05
	9.999999993318	6.68e-11	10.0000000014230	1.42e-10		9.99995807816869	4.19e-05	9.99996012927167	3.99e-05
		1							
k	x^k (LU(sq))	$x^* - x^k$	xk (Gauss)	$x^* - x^k$	k	x^k (LU(sq))	$x^* - x^k$	xk (Gauss)	$x^* - x^k$
	((- 4),)		(,			(== (= 4))		- (,	
		(LU(sq))		(Gauss)			(LU(sq))		(Gauss)
4	0.99999999924949	7.51e-10	0.9999999933856	6.61e-10	10	0.99969466675982	3.05e-04	0.99900652854223	9.93e-04
- 1									
	1.9999999924948	7.51e-10	1.9999999933855	6.61e-10		1.99969466675982	3.05e-04	1.99900652854221	9.93e-04
	2.99999999924948	7.51e-10	2.9999999933855	6.61e-10		2.99969466675982	3.05e-04	2.99900652854222	9.93e-04
	3.9999999924948	7.51e-10	3.9999999933855	6.61e-10	1	3.99969466675982	3.05e-04	3.99900652854222	9.93e-04
- 1	4.99999999924948	7.51e-10	4.9999999933855	6.61e-10		4.99969466675982	3.05e-04	4.99900652854221	9.93e-04
- 1									
- 1	5.9999999924948	7.51e-10	5.9999999933855	6.61e-10		5.99969466675982	3.05e-04	5.99900652854221	9.93e-04
- 1	6.9999999924948	7.51e-10	6.9999999933855	6.61e-10		6.99969466675982	3.05e-04	6.99900652854221	9.93e-04
- 1									
- 1	7.9999999924948	7.51e-10	7.9999999933855	6.61e-10	1	7.99969466675982	3.05e-04	7.99900652854221	9.93e-04
- 1	8.9999999924948	7.51e-10	8.9999999933855	6.61e-10	1	8.99969466675982	3.05e-04	8.99900652854221	9.93e-04
- 1					1				
- 1	9.9999999924948	7.51e-10	9.9999999933855	6.61e-10		9.99969466675982	3.05e-04	9.99900652854221	9.93e-04
- 1		1				I		1	1
		1	1			1		1	1
					_				
k	x^k (LU(sq))	$x^* - x^k$	x^k (Gauss)	$x^* - x^k$	k	x^k (LU(sq))	$x^* - x^k$	xk (Gauss)	$x^* - x^k$
ĸ	x (Lu(sq))		x (Gauss)		K	x (ro(gd))		w (Gauss)	
		(LU(sq))	l	(Gauss)	1	I	(LU(sq))	1	(Gauss)
_	0.00000000000000		0.0000000000000		4.4	0.00007101000050		0.00765601010000	
5	0.99999999880961	1.19e-09	0.99999999808904	1.91e-09	11	0.99297121298259	7.03e-03	0.99765621810360	2.34e-03
-	1.99999999880961	1.19e-09	1.99999999808904	1.91e-09	1	1.99297121298258	7.03e-03	1.99765621810359	2.34e-03
- 1									
- 1	2.99999999880961	1.19e-09	2.99999999808904	1.91e-09		2.99297121298258	7.03e-03	2.99765621810359	2.34e-03
	3.99999999880961	1.19e-09	3.99999999808904	1.91e-09		3.99297121298258	7.03e-03	3.99765621810359	2.34e-03
- 1									
-	4.9999999880961	1.19e-09	4.99999999808904	1.91e-09		4.99297121298258	7.03e-03	4.99765621810359	2.34e-03
- 1	5.9999999880961	1.19e-09	5.9999999808904	1.91e-09		5.99297121298258	7.03e-03	5.99765621810359	2.34e-03
-									
	6.9999999880961	1.19e-09	6.9999999808903	1.91e-09	1	6.99297121298258	7.03e-03	6.99765621810359	2.34e-03
-	7.99999999880961	1.19e-09	7.99999999808904	1.91e-09	1	7.99297121298258	7.03e-03	7.99765621810359	2.34e-03
- 1									
- 1	8.9999999880961	1.19e-09	8.9999999808904	1.91e-09		8.99297121298258	7.03e-03	8.99765621810359	2.34e-03
- 1	9.9999999880961	1.19e-09	9.9999999808904	1.91e-09		9.99297121298258	7.03e-03	9.99765621810359	2.34e-03
- 1	2.0000000000000000000000000000000000000	1.136-03	3.333333333000304	1.016-03	1	3.00201121290200	1.006-00	0.00,00021010309	2.046-03
- 1		1	1		1	I		1	
			•						•
	1-	1	1-					1 - 1-	
k	x^k (LU(sq))	$x^* - x^k$	xk (Gauss)	$x^* - x^k$	k	x^k (LU(sq))	$x^* - x^k$	xk (Gauss)	$x^* - x^k$
			1		1	1		,	
		([][(~~))		(Camaa)		l .	(111/2-))		
		(LU(sq))		(Gauss)			(LU(sq))		(Gauss)
6	0.99999997256948		0.99999991648825		12	1.01351351351351		1.05516540885310	(Gauss)
	0.99999997256948	2.74e-08	0.99999991648825	8.35e-08	12	1.01351351351351	1.35e-02	1.05516540885310	(Gauss) 5.52e-02
	1.99999997256948	2.74e-08 2.74e-08	1.99999991648824	8.35e-08 8.35e-08	12	2.01351351351351	1.35e-02 1.35e-02	2.05516540885311	(Gauss) 5.52e-02 5.52e-02
		2.74e-08		8.35e-08	12		1.35e-02		(Gauss) 5.52e-02
	1.99999997256948 2.99999997256948	2.74e-08 2.74e-08 2.74e-08	1.99999991648824 2.99999991648824	8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351	1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02
	1.99999997256948 2.99999997256948 3.99999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.99999991648824 2.99999991648824 3.99999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.99999997256948 2.99999997256948	2.74e-08 2.74e-08 2.74e-08	1.99999991648824 2.99999991648824	8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351	1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.99999997256948 3.99999997256948 4.99999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.99999991648824 2.99999991648824 3.99999991648824 4.99999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.99999997256948 3.99999997256948 4.99999997256948 5.99999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.99999991648824 3.99999991648824 4.99999991648824 5.99999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.99999997256948 3.99999997256948 4.99999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.99999991648824 2.99999991648824 3.99999991648824 4.99999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.9999997256948 3.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.99999991648824 3.99999991648824 4.99999991648824 5.99999991648824 6.99999991648823	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351351 4.01351351351351351 5.01351351351351 6.01351351351351 7.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.9999997256948 3.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.9999991648824 3.9999991648824 4.9999991648824 5.9999991648823 7.9999991648823	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.9999997256948 3.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.99999991648824 3.99999991648824 4.99999991648824 5.99999991648824 6.99999991648823	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351351 4.01351351351351351 5.01351351351351 6.01351351351351 7.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 8.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.99999991648824 4.9999991648824 5.9999991648824 6.9999991648824 7.9999991648824 8.9999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.9999997256948 3.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.9999991648824 3.9999991648824 4.9999991648824 5.9999991648823 7.9999991648823	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 8.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.99999991648824 4.9999991648824 5.9999991648824 6.9999991648824 7.9999991648824 8.9999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 8.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.99999991648824 4.9999991648824 5.9999991648824 6.9999991648824 7.9999991648824 8.9999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 8.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.99999991648824 4.9999991648824 5.9999991648824 6.9999991648824 7.9999991648824 8.9999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 8.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.99999991648824 4.9999991648824 5.9999991648824 6.9999991648824 7.9999991648824 8.9999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
6	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 9.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.9999991648824 4.9999991648824 5.9999991648824 6.9999991648823 7.9999991648823 9.9999991648823 9.9999991648823	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08		2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352 10.01351351351352	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311	(Gauss) 5.52e-02
6	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 9.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.99999991648824 4.9999991648824 5.9999991648824 6.9999991648824 7.9999991648824 8.9999991648824	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08		2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352 10.01351351351352	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311	(Gauss) 5.52e-02
6	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 8.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	1.9999991648824 2.9999991648824 4.9999991648824 5.9999991648824 6.9999991648823 7.9999991648823 9.9999991648823 9.9999991648823	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	12	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311	(Gauss) 5.52e-02
6 k	1.9999997256948 2.9999997256948 3.9999997256948 4.9999997256948 5.9999997256948 7.9999997256948 8.9999997256948 9.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	$\begin{array}{c} 1.9999991648824 \\ 2.9999991648824 \\ 3.9999991648824 \\ 4.9999991648824 \\ 5.9999991648824 \\ 6.9999991648823 \\ 7.9999991648823 \\ 8.9999991648823 \\ 9.9999991648824 \\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	k	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352 10.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311	(Gauss) 5.52e-02
6 k	1.9999997256948 2.9999997256948 3.9999997256948 4.9999997256948 5.9999997256948 7.9999997256948 8.9999997256948 9.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	$\begin{array}{c} 1.9999991648824 \\ 2.9999991648824 \\ 3.9999991648824 \\ 4.9999991648824 \\ 5.9999991648824 \\ 6.9999991648823 \\ 7.9999991648823 \\ 8.9999991648823 \\ 9.9999991648824 \\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	k	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 7.01351351351351 8.01351351351352 9.01351351351352 10.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02
6	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 9.9999997256948	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08	$\begin{array}{c} 1.9999991648824 \\ 2.9999991648824 \\ 3.9999991648824 \\ 4.9999991648824 \\ 5.9999991648823 \\ 7.9999991648823 \\ 7.9999991648823 \\ 9.9999991648823 \\ 9.9999991648823 \\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-08		$ \begin{array}{c} 2.01351351351351\\ 2.01351351351351\\ 3.01351351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 7.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \\ x^k \ (LU(sq))\\ \\ 0.95225464190981\\ \hline \end{array} $	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 10.05516540885311 y.05516540885311 10.05516540885311	(Gauss) 5.52e-02 5.52e-03 5.52e-03 5.52e-03 5.52e-03 5.52e-03 5.52e-03
6 k	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ y.9999997256948\\ 0.99999997256948\\ 0.99999997256948\\ \end{array}$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.00e-07 2.02e-07	$\begin{array}{c} 1.9999991648824 \\ 2.9999991648824 \\ 3.9999991648824 \\ 4.9999991648824 \\ 5.9999991648824 \\ 6.9999991648823 \\ 7.9999991648823 \\ 8.9999991648823 \\ 9.9999991648824 \\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08	k	$ \begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.01351351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 7.01351351351351\\ 2.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \hline \\ x^k \ (\text{LU(sq)})\\ \hline \\ x^k \ (\text{LU(sq)})\\ \hline \\ 0.95225464190981\\ 1.95225464190981\\ \hline \end{array} $	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.36e-02 1.4e-02 1.4e-02 1.4e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311	(Gauss) 5.52e-02
6 k	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ y.9999997256948\\ 0.99999997256948\\ 0.99999997256948\\ \end{array}$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.00e-07 2.02e-07	$\begin{array}{c} 1.9999991648824 \\ 2.9999991648824 \\ 2.9999991648824 \\ 4.9999991648824 \\ 5.9999991648824 \\ 6.9999991648823 \\ 7.9999991648823 \\ 9.9999991648824 \\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07	k	$ \begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.01351351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 7.01351351351351\\ 2.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \hline \\ x^k \ (\text{LU(sq)})\\ \hline \\ x^k \ (\text{LU(sq)})\\ \hline \\ 0.95225464190981\\ 1.95225464190981\\ \hline \end{array} $	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.36e-02 1.4e-02 1.4e-02 1.4e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311	(Gauss) 5.52e-02 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 9.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999997815290 2.9999997815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-08	$\begin{array}{c} 1.9999991648824 \\ 2.9999991648824 \\ 3.9999991648824 \\ 4.9999991648824 \\ 4.9999991648824 \\ 5.9999991648823 \\ 7.9999991648823 \\ 8.9999991648823 \\ 9.9999991648824 \\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \end{array}$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.47e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01
6 k	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ y.9999997256948\\ 0.99999997256948\\ 0.99999997256948\\ \end{array}$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.00e-07 2.02e-07	$\begin{array}{c} 1.9999991648824 \\ 2.9999991648824 \\ 2.9999991648824 \\ 4.9999991648824 \\ 5.9999991648824 \\ 6.9999991648823 \\ 7.9999991648823 \\ 9.9999991648824 \\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \end{array}$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.47e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311	(Gauss) 5.52e-02 3.68e-01 3.68e-01
6 k	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 0.9999997256948\\ 0.9999997256948\\ 0.9999997256948\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.9999999999815290\\ 0.9999999999815290\\ 0.9999999999815290\\ 0.9999999999815290\\ 0.9999999999815290\\ 0.999999999815290\\ 0.999999999815290\\ 0.999999999815290\\ 0.999999999815290\\ 0.999999999815290\\ 0.9999999999815290\\ 0.9999999999815290\\ 0.9999999999815290\\ 0.99999999999815290\\ 0.999999999815290\\ 0.999999999815290\\ 0.9999999999815290\\ 0.9999999999815290\\ 0.9999999999815290\\ 0.9999999999999815290\\ 0.9999999999815290\\ 0.9999999999999999815290\\ 0.999999999999999999815290\\ 0.9999999999999999999999999999999999$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 8.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.0000017808371\\ 2.00000017808371\\ 4.00000017808371\\ 4.0000017808371\\ 4.0000017808371\\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \end{array}$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.47e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 11.36765722183828 2.36765722183828 3.36765722183828 4.36765722183828	(Gauss) 5.52e-02 5.52e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 9.9999997256948 9.9999997256948 x ^k (LU(sq)) 0.9999997815290 1.9999997815290 2.9999979815290 4.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.99999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.99999991648823\\ 6.9999991648823\\ 3.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.00000017808371\\ 2.00000017808371\\ 3.0000017808371\\ 5.0000017808371\\ 5.0000017808371\\ 5.0000017808371\\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.01351351351351351\\ 5.01351351351351351\\ 6.01351351351351351\\ 7.01351351351351\\ 2.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \end{array}$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 2.35e-02 2.35e-02 2.35e-02 2.35e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 5.05516540885311 5.05516540885311 7.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 110.05516540885311 10.35665722183828 2.36765722183828 4.36765722183828 5.36765722183828	(Gauss) 5.52e-02 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 5.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 4.9999979815290 5.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 8.9999991648823\\ 1.0000017808371\\ 3.0000017808371\\ 4.0000017808371\\ 6.0000017808371\\ 6.0000017808371\\ 6.0000017808371\\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \end{array}$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 2.36765722183828 3.36765722183828 4.36765722183828 6.36765722183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 5.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 4.9999979815290 5.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 8.9999991648823\\ 1.0000017808371\\ 3.0000017808371\\ 4.0000017808371\\ 6.0000017808371\\ 6.0000017808371\\ 6.0000017808371\\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \end{array}$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 2.36765722183828 3.36765722183828 4.36765722183828 6.36765722183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 9.9999997256948 x ^k (LU(sq)) 0.9999997815290 1.999997815290 2.999997815290 4.999997815290 6.999997815290 6.999997815290 6.999997815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	1.9999991648824 2.9999991648824 4.9999991648824 5.9999991648824 6.9999991648823 7.9999991648823 8.9999991648823 9.9999991648824 x ^k (Gauss) 1.0000017808371 2.0000017808371 4.0000017808371 5.0000017808371 7.0000017808371	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	2.01351351351351 3.01351351351351 4.01351351351351 5.01351351351351 6.01351351351351 8.01351351351352 9.01351351351352 9.01351351351352 10.01351351351351	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.36516540885311 2.36765722183828 2.36765722183828 4.36765722183828 5.36765722183828 6.36765722183828 6.36765722183828 7.36765722183828	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-03 5.52e-03 5.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 5.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 4.9999979815290 5.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 8.9999991648823\\ 1.0000017808371\\ 3.0000017808371\\ 4.0000017808371\\ 6.0000017808371\\ 6.0000017808371\\ 6.0000017808371\\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \end{array}$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 2.36765722183828 3.36765722183828 4.36765722183828 6.36765722183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 9.9999997256948 9.9999997815290 1.9999979815290 2.9999979815290 4.9999979815290 5.9999979815290 6.9999979815290 7.99999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 6.9999991648823\\ 7.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.0000017808371\\ 2.0000017808371\\ 3.0000017808371\\ 5.0000017808371\\ 6.0000017808371\\ 6.0000017808371\\ 8.0000017808371\\ 8.0000017808372\\ 8.0000017808372\\ 8.0000017808371\\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.013513513513513\\ 7.01351351351351\\ 2.01351351351352\\ 9.01351351351352\\ 10.01351351351352\\ 10.01351351351351\\ \\ x^k \ \ (LU(sq))\\ \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.3676572183828 2.36765722183828 4.36765722183828 5.36765722183828 6.36765722183828 6.36765722183828 6.36765722183828 8.36765722183828 8.36765722183828 8.36765722183828	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 3.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ x^k \ (LU(sq))$ $ x^k \ (LU(sq))$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 x^k (Gauss) 1.36765722183828 2.36765722183828 4.36765722183828 6.36765722183828 7.3676572183828 7.3676572183828 8.3676572183828 9.3676572183828 9.3676572183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 9.9999997256948 9.9999997815290 1.9999979815290 2.9999979815290 4.9999979815290 5.9999979815290 6.9999979815290 7.99999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 6.9999991648823\\ 7.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.0000017808371\\ 2.0000017808371\\ 3.0000017808371\\ 5.0000017808371\\ 6.0000017808371\\ 6.0000017808371\\ 8.0000017808371\\ 8.0000017808372\\ 8.0000017808372\\ 8.0000017808371\\ \end{array}$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.013513513513513\\ 7.01351351351351\\ 2.01351351351352\\ 9.01351351351352\\ 10.01351351351352\\ 10.01351351351351\\ \\ x^k \ \ (LU(sq))\\ \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.3676572183828 2.36765722183828 4.36765722183828 5.36765722183828 6.36765722183828 6.36765722183828 6.36765722183828 8.36765722183828 8.36765722183828 8.36765722183828	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 3.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ x^k \ (LU(sq))$ $ x^k \ (LU(sq))$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 x^k (Gauss) 1.36765722183828 2.36765722183828 4.36765722183828 6.36765722183828 7.3676572183828 7.3676572183828 8.3676572183828 9.3676572183828 9.3676572183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 3.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ x^k \ (LU(sq))$ $ x^k \ (LU(sq))$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 x^k (Gauss) 1.36765722183828 2.36765722183828 4.36765722183828 6.36765722183828 7.3676572183828 7.3676572183828 8.3676572183828 9.3676572183828 9.3676572183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 3.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ x^k \ (LU(sq))$ $ x^k \ (LU(sq))$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 x^k (Gauss) 1.36765722183828 2.36765722183828 4.36765722183828 6.36765722183828 7.3676572183828 7.3676572183828 8.3676572183828 9.3676572183828 9.3676572183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 3.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ x^k \ (LU(sq))$ $ x^k \ (LU(sq))$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 x^k (Gauss) 1.36765722183828 2.36765722183828 4.36765722183828 6.36765722183828 7.3676572183828 7.3676572183828 8.3676572183828 9.3676572183828 9.3676572183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648824\\ 3.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 3.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ x^k \ (LU(sq))$ $ x^k \ (LU(sq))$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.37e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 x^k (Gauss) 1.36765722183828 2.36765722183828 4.36765722183828 6.36765722183828 7.3676572183828 7.3676572183828 8.3676572183828 9.3676572183828 9.3676572183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
k 7	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.99999979815290 1.9999979815290 2.9999979815290 6.9999979815290 6.9999979815290 6.9999979815290 6.9999979815290 8.9999979815290 9.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.72e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648824\\ 3.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \hline\\ x^k (LU(sq))\\ \hline\\ x^k (LU(sq))$	1.35e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 2.36765722183828 3.36765722183828 4.36765722183828 5.36765722183828 7.36765722183828 7.3676572183828 9.3676572183829 10.3676572183829	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 5.68e-01 5.68e-01 5.68e-01 5.68e-01 5.68e-01 5.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07 2.02e-07	$\begin{array}{c} 1.9999991648824 \\ 2.9999991648824 \\ 3.9999991648824 \\ 4.9999991648824 \\ 4.9999991648824 \\ 5.9999991648823 \\ 7.9999991648823 \\ 8.9999991648823 \\ 9.9999991648824 \\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07 1.78e-07	k	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 3.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ x^k \ (LU(sq))$ $ x^k \ (LU(sq))$	1.35e-02 1.37e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 x^k (Gauss) 1.36765722183828 2.36765722183828 4.36765722183828 6.36765722183828 7.3676572183828 7.3676572183828 8.3676572183828 9.3676572183828 9.3676572183828	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
6 k	1.9999997256948 2.9999997256948 4.9999997256948 4.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 x ^k (LU(sq)) 0.99999979815290 1.9999979815290 2.9999979815290 6.9999979815290 6.9999979815290 6.9999979815290 6.9999979815290 8.9999979815290 9.9999979815290	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.72e-07 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 3.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648824\\ 3.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \hline\\ x^k (LU(sq))\\ \hline\\ x^k (LU(sq))$	1.35e-02 4.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 2.36765722183828 3.36765722183828 4.36765722183828 5.36765722183828 7.36765722183828 7.3676572183828 9.3676572183829 10.3676572183829	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 0.9999997256948\\ 0.9999997815290\\ 1.9999997815290\\ 2.9999997815290\\ 4.9999979815290\\ 6.9999979815290\\ 6.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.9999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.9999999999999999999999999999999999$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648823\\ 6.9999991648823\\ 7.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.0000017808371\\ 2.00000017808371\\ 4.00000017808371\\ 4.0000017808371\\ 6.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 2.0000017808371\\ 10.0000017808371\\ 2.0000017808371\\ 10.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 3.00000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.00000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.00000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.01351351351351\\ 7.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \hline \\ x^k \ (LU(sq))\\ \hline \\ 0.95225464190981\\ 1.95225464190981\\ 4.95225464190981\\ 4.95225464190981\\ 6.95225464190981\\ 7.95225464190981\\ 9.95225464190981\\ 9.95225464190981\\ \hline \\ y.95225464190981\\ 9.95225464190981\\ \hline \\ x^k \ (LU(sq))\\ \hline $	1.35e-02 1.37e-02 4.77e-02	$\begin{array}{c} 2.05516540885311\\ 3.05516540885311\\ 4.05516540885311\\ 5.05516540885311\\ 5.05516540885311\\ 6.05516540885311\\ 8.05516540885311\\ 9.05516540885311\\ 9.05516540885311\\ 10.05516540885311\\ 10.05516540885311\\ \end{array}$	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 0.9999997815290\\ 1.9999979815290\\ 2.9999979815290\\ 4.9999979815290\\ 6.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 0.9999979815290\\ 1.9999979815290\\ 1.9999979815290\\ 1.9999979815290\\ 1.9999979815290\\ 1.9999979815290\\ 1.9999979815290\\ 1.9999979815290\\ 1.9999979815290\\ 1.000000055175564\\ \end{array}$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.99999991648824\\ 2.99999991648824\\ 4.9999991648824\\ 5.99999991648824\\ 6.99999991648823\\ 7.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.00000017808371\\ 2.00000017808371\\ 3.0000017808371\\ 5.0000017808371\\ 6.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.0000017808371\\ 0.00000000000000000000000000000000000$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.013513513513513\\ 7.01351351351351\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351352\\ 10.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \hline\\ 0.95225464190981\\ 2.95225464190981\\ 4.95225464190981\\ 4.95225464190981\\ 5.95225464190981\\ 7.95225464190981\\ 9.95225464190981\\ 9.95225464190981\\ \hline\\ x^k \ (LU(sq))\\ \hline\\ x^k \ (LU(sq))\\ \hline\\ -0.77358490566038\\ \hline\end{array}$	1.35e-02 1.36e-02 1.37e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 2.05516540885311 2.05516540885311 3.6765722183828 2.36765722183828 3.36765722183828 5.36765722183828 5.36765722183828 9.36765722183829 10.36765722183829 10.36765722183829 10.36765722183829 10.36765722183829 10.36765722183829 10.36765725183829 10.36765725183829 10.36765725183829	(Gauss) 5.52e-02 5.52e-01 3.68e-01 5.68e-01 5.68e-01 6.60e+00
k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 0.9999997256948\\ 0.9999997815290\\ 1.9999997815290\\ 2.9999997815290\\ 4.9999979815290\\ 6.9999979815290\\ 6.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.9999979815290\\ 0.9999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.9999999999999999999999999999999999$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648823\\ 6.9999991648823\\ 7.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.0000017808371\\ 2.00000017808371\\ 4.00000017808371\\ 4.0000017808371\\ 6.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 2.0000017808371\\ 10.0000017808371\\ 2.0000017808371\\ 10.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 2.0000017808371\\ 3.00000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.00000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.00000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3.0000017808371\\ 3$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.01351351351351\\ 7.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \hline \\ x^k \ (LU(sq))\\ \hline \\ 0.95225464190981\\ 1.95225464190981\\ 4.95225464190981\\ 4.95225464190981\\ 6.95225464190981\\ 7.95225464190981\\ 9.95225464190981\\ 9.95225464190981\\ \hline \\ y.95225464190981\\ 9.95225464190981\\ \hline \\ x^k \ (LU(sq))\\ \hline $	1.35e-02 1.37e-02 4.77e-02	$\begin{array}{c} 2.05516540885311\\ 3.05516540885311\\ 4.05516540885311\\ 5.05516540885311\\ 5.05516540885311\\ 6.05516540885311\\ 8.05516540885311\\ 9.05516540885311\\ 9.05516540885311\\ 10.05516540885311\\ 10.05516540885311\\ \end{array}$	(Gauss) 5.52e-02 5.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01
k 7	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 2.84 (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 5.9999979815290 7.9999979815290 8.9999979815290 9.9999979815290 8.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290 8.9999979815290 1.0000005175564 2.00000005175564	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 8.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline \\ x^k \ (LU(sq))\\ \\ \\ x^k \ (LU(sq))$	1.35e-02 1.37e-02 4.77e-02 1.77e-02 1.77e-00	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 2.055165408851 2.055165408851 2.055166408851 2.055166408851 2.055166408851 2.055166408851 2.055166408851	(Gauss) 5.52e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62e-02 5.62
k k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 0.9999997815290\\ 1.9999979815290\\ 2.9999979815290\\ 4.9999979815290\\ 6.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 1.0000005175564\\ 2.00000005175564\\ 3.000000005175564\\ 3.000$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 8.9999991648823\\ 9.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.013513513513513\\ 1.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ \hline\\ x^k \ (LU(sq))\\ \\ 0.95225464190981\\ 1.95225464190981\\ 4.95225464190981\\ 4.95225464190981\\ 6.95225464190981\\ 7.95225464190981\\ 9.95225464190981\\ \hline\\ x^k \ (LU(sq))\\ \\ -0.77358490566038\\ 0.22641509433962\\ 1.22641509433962\\ \end{array}$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02	$ \begin{array}{c} 2.05516540885311 \\ 3.05516540885311 \\ 4.05516540885311 \\ 5.05516540885311 \\ 6.05516540885311 \\ 6.05516540885311 \\ 8.05516540885311 \\ 9.05516540885311 \\ 9.05516540885311 \\ 9.05516540885311 \\ 9.05516540885311 \\ 9.05516540885311 \\ 10.05516540885311 \\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	(Gauss) 5.52e-02 5.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 6.60e+00 6.60e+00 6.60e+00
k 7	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 2.84 (LU(sq)) 0.9999979815290 1.9999979815290 4.9999979815290 5.9999979815290 7.9999979815290 8.9999979815290 9.9999979815290 8.9999979815290 7.9999979815290 8.9999979815290 8.9999979815290 8.9999979815290 1.0000005175564 2.00000005175564	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 8.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline \\ x^k \ (LU(sq))\\ \\ \\ x^k \ (LU(sq))$	1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 1.35e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02 1.77e-02	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 2.055165408851 2.055165408851 2.055166408851 2.055166408851 2.055166408851 2.055166408851 2.055166408851	(Gauss) 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 6.60e+00 6.60e+00
k k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 0.9999997256948\\ 0.9999997815290\\ 1.99999979815290\\ 2.9999979815290\\ 4.9999979815290\\ 6.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.99999979815290\\ 0.9999999999999999999999999999999999$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 6.9999991648823\\ 7.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.0000017808371\\ 2.0000017808371\\ 3.0000017808371\\ 5.0000017808371\\ 5.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 0.000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 2.90999220220320\\ 1.99999220220319\\ 2.99999220220319\\ 3.99999202220319\\ 3.99999200220319\\ 3.99999200220319\\ 3.99999200220319\\ 3.99999200220319\\ 3.9999920020319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.99998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.9989200220319\\ 3.9998200220319\\ 3.9998200220319\\ 3.99882020220319\\ 3.99882020220319\\ 3.99882020220319\\ 3.99882020220319\\ 3.99882020220319\\ 3.99882020220319\\ 3.9988202020319\\ 3.998820202020319\\ 3$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.01351351351351351\\ 7.01351351351351\\ 9.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline\\ &x^k \ (LU(sq))\\ \\ \\ &x^k \ (LU(sq))\\ \\ \\ &x^k \ (LU(sq))$	1.35e-02 1.36e-02 1.37e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e-02 1.77e-00	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 2.05516540885311 2.05516540885311 2.05516540885311 2.05516540885311 2.05516540885311 2.05516540885311 2.05676722183828 2.36765722183828 3.36765722183828 3.36765722183828 9.36765722183829 10.36765722183829 10.36765722183829 2.55999493115533 2.59994993115534 2.59994993115534	(Gauss) 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 6.60e+00 6.60e+00 6.60e+00 6.60e+00
k k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 0.9999997815290\\ 1.9999979815290\\ 2.9999979815290\\ 4.9999979815290\\ 6.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 1.0000005175564\\ 2.00000005175564\\ 3.000000005175564\\ 3.000$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 8.9999991648823\\ 9.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.013513513513513\\ 1.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ \hline\\ x^k \ (LU(sq))\\ \\ 0.95225464190981\\ 1.95225464190981\\ 4.95225464190981\\ 4.95225464190981\\ 6.95225464190981\\ 7.95225464190981\\ 9.95225464190981\\ \hline\\ x^k \ (LU(sq))\\ \\ -0.77358490566038\\ 0.22641509433962\\ 1.22641509433962\\ \end{array}$	1.35e-02 1.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e+00 1.77e+00 1.77e+00 1.77e+00 1.77e+00	$ \begin{array}{c} 2.05516540885311 \\ 3.05516540885311 \\ 4.05516540885311 \\ 5.05516540885311 \\ 6.05516540885311 \\ 6.05516540885311 \\ 8.05516540885311 \\ 9.05516540885311 \\ 9.05516540885311 \\ 9.05516540885311 \\ 9.05516540885311 \\ 9.05516540885311 \\ 10.05516540885311 \\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	(Gauss) 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 6.60e+00 6.60e+00 6.60e+00 6.60e+00
k k 7	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 2.84 (LU(sq)) 0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 9.9999979815290 1.0000005175564 2.0000005175564 3.0000005175564 5.0000005175564	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 3.9999991648824\\ 8.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	8.35e-08 8.36e-08	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.01351351351351351\\ 5.01351351351351351\\ 6.01351351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351351\\ \hline\\ x^k \ (LU(sq))\\ \hline\\ x^2 \ (LU(sq))$	1.35e-02 1.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e+00 1.77e+00 1.77e+00 1.77e+00 1.77e+00	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 2.05516540885311 2.36765722183828 2.36765722183828 4.36765722183828 5.36765722183828 7.3676572183828 7.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829	(Gauss) 5.52e-02 5.62e-02 5.62
k k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 0.9999997256948\\ 0.9999997815290\\ 1.999997815290\\ 2.999997815290\\ 3.9999979815290\\ 6.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 1.0000005175564\\ 2.0000005175564\\ 4.0000005175564\\ 4.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.00000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.00000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 6.00000005175564\\ 6.0000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.000000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.000000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.000000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.0000000517564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.000000005175564\\ 6.000000005175564\\ 6.000000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.000000005175564\\ 6.000000005175564\\ 6.00$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.02e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08 5.18e-08	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 8.9999991648823\\ 9.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.36e-08	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.013513513513513\\ 1.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 10.01351351351351\\ \hline\\ x^k \ (LU(sq))\\ \\ \hline\\ x^k \ (LU(sq))\\ \\ 0.95225464190981\\ 1.95225464190981\\ 4.95225464190981\\ 4.95225464190981\\ 6.95225464190981\\ 7.95225464190981\\ 9.95225464190981\\ 9.95225464190981\\ \hline\\ x^k \ (LU(sq))\\ \\ \hline\\ x^k \ (LU(sq))\\ \\ \hline\\ x^k \ (LU(sq))\\ \\ \hline\\ 2.2641509433962\\ 2.22641509433962\\ 2.22641509433962\\ 3.22641509433962\\ 3.22641509433962\\ 4.22641509433962\\ $	1.35e-02 1.37e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e-00 1.77e+00 1.77e+00 1.77e+00 1.77e+00 1.77e+00 1.77e+00	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 8.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 xk (Gauss) 1.36765722183828 2.36765722183828 4.36765722183828 6.36765722183828 9.36765722183829 9.36765722183829 10.36765722183829 10.36765722183829 10.36765722183829 10.3676572183829 10.3676572183829 10.3676572183829 10.36765725183829 10.36765725183829 10.36765725183829 10.36765725183829 10.36765725183829 10.36765725183829 10.36765725183829	(Gauss) 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 6.60e+00
k k 7	1.9999997256948 2.9999997256948 4.9999997256948 5.9999997256948 6.9999997256948 7.9999997256948 8.9999997256948 8.9999997256948 2.84 (LU(sq)) 0.9999979815290 1.9999979815290 2.9999979815290 3.9999979815290 4.9999979815290 6.9999979815290 7.9999979815290 8.9999979815290 9.9999979815290 1.0000005175564 2.0000005175564 3.0000005175564 5.0000005175564	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 3.9999991648824\\ 8.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	8.35e-08 8.36e-08	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.01351351351351351\\ 5.01351351351351351\\ 6.01351351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351351\\ \hline\\ x^k \ (LU(sq))\\ \hline\\ x^2 \ (LU(sq))$	1.35e-02 1.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e+00 1.77e+00 1.77e+00 1.77e+00 1.77e+00	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 2.05516540885311 2.36765722183828 2.36765722183828 4.36765722183828 5.36765722183828 7.3676572183828 7.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829	(Gauss) 5.52e-02 5.62e-02 5.62
k k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 9.999997256948\\ 9.999997815290\\ 1.9999979815290\\ 2.9999979815290\\ 4.9999979815290\\ 6.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ 1.0000005175564\\ 2.0000005175564\\ 4.00000005175564\\ 4.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.000000517564\\ 9.0000005175564\\ 9.00000005175564\\ 9.000000$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 6.9999991648823\\ 7.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.0000017808371\\ 2.00000017808371\\ 3.0000017808371\\ 5.0000017808371\\ 6.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 0.0000017808371\\ 10.00000017808371\\ 10.00000017808371\\ 10.00000017808371\\ 10.0000000000000000000000000000000000$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.013513513513513\\ 7.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ 10.01351351351351\\ \end{array}$	1.35e-02 1.37e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e+00	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 2.056765722183828 2.36765722183828 4.36765722183828 5.36765722183828 9.36765722183828 9.36765722183829 10.36765722183829 10.36765722183829 2.5676572183829 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.5676572183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.5676572183828 2.5676572183828 2.5676572183828 2.5676572183828 2.5676572183828 2.5676572183828 2.567	(Gauss) 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00
k k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 8.9999997256948\\ \hline\\ x^k (LU(sq))\\ \hline\\ 0.9999979815290\\ 1.9999979815290\\ 2.9999979815290\\ 4.9999979815290\\ 4.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ \hline\\ x^k (LU(sq))\\ \hline\\ 1.0000005175564\\ 2.0000005175564\\ 3.0000005175564\\ 6.0000005175564\\ 8.0000005175564\\ 8.0000005175564\\ 8.0000005175564\\ 8.0000005175564\\ \hline\\ \end{array}$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 4.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648823\\ 3.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	8.35e-08 8.36e-08	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline \\ x^k \ (LU(sq))\\ \\ x^k \ (LU(sq))\\ \\ \\ x^k \ (LU(sq))$ $ \\ x^k \ (LU(sq))$	1.35e-02 1.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e+00	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 2.36765722183828 2.36765722183828 4.36765722183828 5.36765722183828 7.36765722183828 7.36765722183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829	(Gauss) 5.52e-02 5.62e-02 5.62
k k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 9.999997256948\\ 9.999997815290\\ 1.9999979815290\\ 2.9999979815290\\ 4.9999979815290\\ 6.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ 1.0000005175564\\ 2.0000005175564\\ 4.00000005175564\\ 4.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 6.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 7.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.000000517564\\ 9.0000005175564\\ 9.00000005175564\\ 9.000000$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 6.9999991648823\\ 7.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 9.9999991648823\\ 1.0000017808371\\ 2.00000017808371\\ 3.0000017808371\\ 5.0000017808371\\ 6.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 10.0000017808371\\ 0.0000017808371\\ 10.00000017808371\\ 10.00000017808371\\ 10.00000017808371\\ 10.0000000000000000000000000000000000$	8.35e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351351\\ 4.013513513513513\\ 5.01351351351351\\ 6.013513513513513\\ 7.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ 10.01351351351351\\ \end{array}$	1.35e-02 1.37e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e+00	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 9.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 2.056765722183828 2.36765722183828 4.36765722183828 5.36765722183828 9.36765722183828 9.36765722183829 10.36765722183829 10.36765722183829 2.5676572183829 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.5676572183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.56765722183828 2.5676572183828 2.5676572183828 2.5676572183828 2.5676572183828 2.5676572183828 2.5676572183828 2.567	(Gauss) 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00
k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 9.9999997256948\\ 9.9999997256948\\ 9.999997815290\\ 1.9999979815290\\ 2.9999979815290\\ 4.9999979815290\\ 2.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 9.9999979815290\\ 1.0000005175564\\ 3.0000005175564\\ 4.0000005175564\\ 6.0000005175564\\ 6.0000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.0000000517564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.00000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.0000005175564\\ 9.$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 5.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 8.9999991648823\\ 9.9999991648823\\ 9.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	8.35e-08 8.36e-08 1.78e-07	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 4.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ 10.01351351351351\\ \end{array}$	1.35e-02 1.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e-00 1.77e+00	$\begin{array}{c} 2.05516540885311\\ 3.05516540885311\\ 4.05516540885311\\ 5.05516540885311\\ 5.05516540885311\\ 6.05516540885311\\ 8.05516540885311\\ 9.05516540885311\\ 9.05516540885311\\ 9.05516540885311\\ 9.05516540885311\\ 10.05516540885311\\ 10.05516540885311\\ \hline \\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	(Gauss) 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 6.60e+00
k 7	$\begin{array}{c} 1.9999997256948\\ 2.9999997256948\\ 4.9999997256948\\ 4.9999997256948\\ 5.9999997256948\\ 6.9999997256948\\ 7.9999997256948\\ 8.9999997256948\\ 8.9999997256948\\ \hline\\ x^k (LU(sq))\\ \hline\\ 0.9999979815290\\ 1.9999979815290\\ 2.9999979815290\\ 4.9999979815290\\ 4.9999979815290\\ 7.9999979815290\\ 9.9999979815290\\ \hline\\ x^k (LU(sq))\\ \hline\\ 1.0000005175564\\ 2.0000005175564\\ 3.0000005175564\\ 6.0000005175564\\ 8.0000005175564\\ 8.0000005175564\\ 8.0000005175564\\ 8.0000005175564\\ \hline\\ \end{array}$	2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.74e-08 2.02e-07 2.0	$\begin{array}{c} 1.9999991648824\\ 2.9999991648824\\ 2.9999991648824\\ 4.9999991648824\\ 4.9999991648824\\ 5.9999991648823\\ 7.9999991648823\\ 3.9999991648823\\ 9.9999991648823\\ 3.9999991648824\\ \hline\\ x^k \ \ \ \ \ \ \ \ \ \ \ \ \ $	8.35e-08 8.36e-08	k 13	$\begin{array}{c} 2.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 3.01351351351351\\ 5.01351351351351\\ 6.01351351351351\\ 6.01351351351351\\ 8.01351351351352\\ 9.01351351351352\\ 9.01351351351351\\ \hline \\ x^k \ (LU(sq))\\ \\ x^k \ (LU(sq))\\ \\ \\ x^k \ (LU(sq))$ $ \\ x^k \ (LU(sq))$	1.35e-02 1.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 4.77e-02 1.77e+00	2.05516540885311 3.05516540885311 4.05516540885311 5.05516540885311 6.05516540885311 7.05516540885311 8.05516540885311 9.05516540885311 10.05516540885311 10.05516540885311 10.05516540885311 2.36765722183828 2.36765722183828 4.36765722183828 5.36765722183828 7.36765722183828 7.36765722183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829 10.3676572183829	(Gauss) 5.52e-02 5.52e-03 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 3.68e-01 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00 6.60e+00

k	x^k (LU(sq))	$x^* - x^k$	x^k (Gauss)	$x^* - x^k$
		(LU(sq))		(Gauss)
15	-8.37500000000000	9.38e+00	-3.13876967095851	4.14e+00
	-7.37500000000000	9.38e+00	-2.13876967095851	4.14e+00
	-6.37500000000000	9.38e+00	-1.13876967095851	4.14e+00
	-5.37500000000000	9.38e+00	-0.13876967095851	4.14e+00
	-4.37500000000000	9.38e+00	0.86123032904149	4.14e+00
	-3.37500000000000	9.38e+00	1.86123032904149	4.14e+00
	-2.37500000000000	9.38e+00	2.86123032904149	4.14e+00
	-1.37500000000000	9.38e+00	3.86123032904149	4.14e+00
	-0.37500000000000	9.38e+00	4.86123032904149	4.14e+00
	0.62500000000000	9.38e+00	5.86123032904149	4.14e+00

k	x^k (LU(sq))	$x^* - x^k$	x^k (Gauss)	$x^* - x^k$
		(LU(sq))		(Gauss)
16	-8.37500000000000	9.38e+00	-3.13876967095851	4.14e+00
	-7.37500000000000	9.38e+00	-2.13876967095851	4.14e+00
	-6.37500000000000	9.38e+00	-1.13876967095851	4.14e+00
	-5.37500000000000	9.38e+00	-0.13876967095851	4.14e+00
	-4.37500000000000	9.38e+00	0.86123032904149	4.14e+00
	-3.37500000000000	9.38e+00	1.86123032904149	4.14e+00
	-2.37500000000000	9.38e+00	2.86123032904149	4.14e+00
	-1.37500000000000	9.38e+00	3.86123032904149	4.14e+00
	-0.37500000000000	9.38e+00	4.86123032904149	4.14e+00
	0.62500000000000	9.38e+00	5.86123032904149	4.14e+00

k	x^k (LU(sq))	$x^* - x^k$	x^k (Gauss)	$x^* - x^k$
	_	(LU(sq))		(Gauss)
17	-8.37500000000000	9.38e+00	-3.13876967095851	4.14e+00
	-7.37500000000000	9.38e+00	-2.13876967095851	4.14e+00
	-6.37500000000000	9.38e+00	-1.13876967095851	4.14e+00
	-5.37500000000000	9.38e+00	-0.13876967095851	4.14e+00
	-4.37500000000000	9.38e+00	0.86123032904149	4.14e+00
	-3.37500000000000	9.38e+00	1.86123032904149	4.14e+00
	-2.37500000000000	9.38e+00	2.86123032904149	4.14e+00
	-1.37500000000000	9.38e+00	3.86123032904149	4.14e+00
	-0.37500000000000	9.38e+00	4.86123032904149	4.14e+00
	0.62500000000000	9.38e+00	5.86123032904149	4.14e+00

Метод LU(sq)-разложения обладает точностью, сравнимой с точностью метода Гаусса (какой метод приведёт к более точному решению заранее неизвестно), при этом выигрывая по времени на $2n^2$ операций (без учёта времени расчёта n квадратных корней, время расчёта которых заранее неизвестно)