

数值代数实验报告 7

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1 问题描述

1.1 求实对称三对角阵的全部特征值和特征向量

1.1.1

用 C++ 编制利用过关 Jacobi 方法求实对称三对角阵全部特征值和特征向量的通用子程序

1.1.2

利用你所编制的子程序求 50, 60, 70, 80, 90, 100 阶矩阵

$$A = \begin{bmatrix} 4 & 1 & 0 & 0 & \cdots & 0 \\ 1 & 4 & 1 & 0 & \cdots & 0 \\ 0 & 1 & 4 & 1 & \cdots & 0 \\ \vdots & & \ddots & \ddots & \ddots & \\ 0 & \cdots & 0 & 1 & 4 & 1 \\ 0 & 0 & \cdots & 0 & 1 & 4 \end{bmatrix}$$

的全部特征值和特征向量。

1.2 求实对称三对角阵的指定特征值及对应的特征向量

1.2.1

用 C++ 编制先利用二分法求实对称三对角阵指定特征值，再利用反幂法求对应特征向量的通用子程序

1.2.2 利用你所编制的子程序求 100 阶矩阵

$$A = \begin{bmatrix} 2 & -1 & 0 & 0 & \cdots & 0 \\ -1 & 2 & -1 & 0 & \cdots & 0 \\ 0 & -1 & 2 & -1 & \cdots & 0 \\ \vdots & & \ddots & \ddots & \ddots & \\ 0 & \cdots & 0 & -1 & 2 & -1 \\ 0 & 0 & \cdots & 0 & -1 & 2 \end{bmatrix}$$

的最大和最小特征值及对应的特征向量

2 算法说明

必须实现的算法有：

1. 经典 Jacobi 方法 过关 Jacobi 方法 \Rightarrow JacobiMethod/JacobiMethod
2. 二分法分解 \Rightarrow BisectMethod/BisectMethod
3. 反幂法 \Rightarrow PowerIteration/RevPowerIteration

调整了大部分命名、输出格式、循环结果等。

3 运行结果

也可在 `homeworks/reports/data/report_7_output.txt` 中查看。

```
n = 50
[[ 3.938410
 [      5.996207
 [      2.299566
 [      4.061590
 [      3.815463
 [      4.184537
 [      2.003793
 [      5.762024
 [      2.015159
 ],
 [      4.547326
 ],
 [      3.335
 ],
 ],
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```


[illegible]

[-0.012191 0.024336 -0.177269 -0.012191 0.036388 -0.036388 -0.024336 -0.165078 0.048302
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0.177269 -0.114416 0.124149 -0.142168 0.150385 ]]
Iteration count: 5655
Time cost: 4735447
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0.531155 0.557253 0.582812 0.607806 0.632213 0.656008 0.679168 0.701672 0.723496 0.744621
0.765025 0.784689 0.803594 0.821722 0.839054 0.855575 0.871268 0.886119 0.900112 0.913234
0.925472 0.936816 0.947253 0.956773 0.965368 0.973030 0.979749 0.985521 0.990340 0.994200
0.997099 0.999033 1.000000 1.000000 0.999033 0.997099 0.994200 0.990340 0.985521 0.979749
0.973030 0.965368 0.956773 0.947253 0.936816 0.925472 0.913234 0.900112 0.886119 0.871268
0.855575 0.839054 0.821722 0.803594 0.784689 0.765025 0.744621 0.723496 0.701672 0.679168
0.656008 0.632213 0.607806 0.582812 0.557253 0.531155 0.504544 0.477444 0.449883 0.421886
0.393481 0.364696 0.335557 0.306094 0.276335 0.246309 0.216044 0.185570 0.154917 0.124114
0.093191 0.062177 0.031104 ]
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0.900112 0.871268 0.839054 0.803594 0.765025 0.723496 0.679168 0.632213 0.582812 0.531155
0.477444 0.421886 0.364696 0.306094 0.246309 0.185570 0.124114 0.062177 ]
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0.701672 0.784689 0.855575 0.913234 0.956773 0.985521 0.999033 0.997099 0.979749 0.947253
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]
lambda = 0.034730 :[ 0.185570 0.364696 0.531155 0.679168 0.803594 0.900112 0.965368
0.997099 0.994200 0.956773 0.886119 0.784689 0.656008 0.504544 0.335557 0.154917 -0.031104
-0.216044 -0.393481 -0.557253 -0.701672 -0.821722 -0.913234 -0.973030 -0.999033 -0.990340
-0.947253 -0.871268 -0.765025 -0.632213 -0.477444 -0.306094 -0.124114 0.062177 0.246309
0.421886 0.582812 0.723496 0.839054 0.925472 0.979749 1.000000 0.985521 0.936816 0.855575
0.744621 0.607806 0.449883 0.276335 0.093191 -0.093191 -0.276335 -0.449883 -0.607806
-0.744621 -0.855575 -0.936816 -0.985521 -1.000000 -0.979749 -0.925472 -0.839054 -0.723496
-0.582812 -0.421886 -0.246309 -0.062177 0.124114 0.306094 0.477444 0.632213 0.765025
0.871268 0.947253 0.990340 0.999033 0.973030 0.913234 0.821722 0.701672 0.557253 0.393481
0.216044 0.031104 -0.154917 -0.335557 -0.504544 -0.656008 -0.784689 -0.886119 -0.956773
-0.994200 -0.997099 -0.965368 -0.900112 -0.803594 -0.679168 -0.531155 -0.364696 -0.185570
]
lambda = 0.047221 :[ -0.216044 -0.421886 -0.607806 -0.765025 -0.886119 -0.965368 -0.999033
-0.985521 -0.925472 -0.821722 -0.679168 -0.504544 -0.306094 -0.093191 0.124114 0.335557
0.531155 0.701672 0.839054 0.936816 0.990340 0.997099 0.956773 0.871268 0.744621 0.582812
0.393481 0.185570 -0.031104 -0.246309 -0.449883 -0.632213 -0.784689 -0.900112 -0.973030
-1.000000 -0.979749 -0.913234 -0.803594 -0.656008 -0.477444 -0.276335 -0.062177 0.154917

```

```

0.364696 0.557253 0.723496 0.855575 0.947253 0.994200 0.994200 0.947253 0.855575 0.723496
0.557253 0.364696 0.154917 -0.062177 -0.276335 -0.477444 -0.656008 -0.803594 -0.913234
-0.979749 -1.000000 -0.973030 -0.900112 -0.784689 -0.632213 -0.449883 -0.246309 -0.031104
0.185570 0.393481 0.582812 0.744621 0.871268 0.956773 0.997099 0.990340 0.936816 0.839054
0.701672 0.531155 0.335557 0.124114 -0.093191 -0.306094 -0.504544 -0.679168 -0.821722
-0.925472 -0.985521 -0.999033 -0.965368 -0.886119 -0.765025 -0.607806 -0.421886 -0.216044
]
lambda = 0.061602 :[ 0.246309 0.477444 0.679168 0.839054 0.947253 0.997099 0.985521
0.913234 0.784689 0.607806 0.393481 0.154917 -0.093191 -0.335557 -0.557253 -0.744621
-0.886119 -0.973030 -1.000000 -0.965368 -0.871268 -0.723496 -0.531155 -0.306094 -0.062177
0.185570 0.421886 0.632213 0.803594 0.925472 0.990340 0.994200 0.936816 0.821722 0.656008
0.449883 0.216044 -0.031104 -0.276335 -0.504544 -0.701672 -0.855575 -0.956773 -0.999033
-0.979749 -0.900112 -0.765025 -0.582812 -0.364696 -0.124114 0.124114 0.364696 0.582812
0.765025 0.900112 0.979749 0.999033 0.956773 0.855575 0.701672 0.504544 0.276335 0.031104
-0.216044 -0.449883 -0.656008 -0.821722 -0.936816 -0.994200 -0.990340 -0.925472 -0.803594
-0.632213 -0.421886 -0.185570 0.062177 0.306094 0.531155 0.723496 0.871268 0.965368
1.000000 0.973030 0.886119 0.744621 0.557253 0.335557 0.093191 -0.154917 -0.393481
-0.607806 -0.784689 -0.913234 -0.985521 -0.997099 -0.947253 -0.839054 -0.679168 -0.477444
-0.246309 ]
lambda = 0.077858 :[ -0.276335 -0.531155 -0.744621 -0.900112 -0.985521 -0.994200 -0.925472
-0.784689 -0.582812 -0.335557 -0.062177 0.216044 0.477444 0.701672 0.871268 0.973030
0.999033 0.947253 0.821722 0.632213 0.393481 0.124114 -0.154917 -0.421886 -0.656008
-0.839054 -0.956773 -1.000000 -0.965368 -0.855575 -0.679168 -0.449883 -0.185570 0.093191
0.364696 0.607806 0.803594 0.936816 0.997099 0.979749 0.886119 0.723496 0.504544 0.246309
-0.031104 -0.306094 -0.557253 -0.765025 -0.913234 -0.990340 -0.990340 -0.913234 -0.765025
-0.557253 -0.306094 -0.031104 0.246309 0.504544 0.723496 0.886119 0.979749 0.997099
0.936816 0.803594 0.607806 0.364696 0.093191 -0.185570 -0.449883 -0.679168 -0.855575
-0.965368 -1.000000 -0.956773 -0.839054 -0.656008 -0.421886 -0.154917 0.124114 0.393481
0.632213 0.821722 0.947253 0.999033 0.973030 0.871268 0.701672 0.477444 0.216044 -0.062177
-0.335557 -0.582812 -0.784689 -0.925472 -0.994200 -0.985521 -0.900112 -0.744621 -0.531155
-0.276335 ]
lambda = 0.095974 :[ -0.306094 -0.582812 -0.803594 -0.947253 -1.000000 -0.956773 -0.821722
-0.607806 -0.335557 -0.031104 0.276335 0.557253 0.784689 0.936816 0.999033 0.965368
0.839054 0.632213 0.364696 0.062177 -0.246309 -0.531155 -0.765025 -0.925472 -0.997099
-0.973030 -0.855575 -0.656008 -0.393481 -0.093191 0.216044 0.504544 0.744621 0.913234
0.994200 0.979749 0.871268 0.679168 0.421886 0.124114 -0.185570 -0.477444 -0.723496
-0.900112 -0.990340 -0.985521 -0.886119 -0.701672 -0.449883 -0.154917 0.154917 0.449883
0.701672 0.886119 0.985521 0.990340 0.900112 0.723496 0.477444 0.185570 -0.124114 -0.421886
-0.679168 -0.871268 -0.979749 -0.994200 -0.913234 -0.744621 -0.504544 -0.216044 0.093191
0.393481 0.656008 0.855575 0.973030 0.997099 0.925472 0.765025 0.531155 0.246309 -0.062177
-0.364696 -0.632213 -0.839054 -0.965368 -0.999033 -0.936816 -0.784689 -0.557253 -0.276335

```

```

0.031104 0.335557 0.607806 0.821722 0.956773 1.000000 0.947253 0.803594 0.582812 0.306094
]
lambda = 0.115931 :[ -0.335557 -0.632213 -0.855575 -0.979749 -0.990340 -0.886119 -0.679168
-0.393481 -0.062177 0.276335 0.582812 0.821722 0.965368 0.997099 0.913234 0.723496
0.449883 0.124114 -0.216044 -0.531155 -0.784689 -0.947253 -1.000000 -0.936816 -0.765025
-0.504544 -0.185570 0.154917 0.477444 0.744621 0.925472 0.999033 0.956773 0.803594
0.557253 0.246309 -0.093191 -0.421886 -0.701672 -0.900112 -0.994200 -0.973030 -0.839054
-0.607806 -0.306094 0.031104 0.364696 0.656008 0.871268 0.985521 0.985521 0.871268
0.656008 0.364696 0.031104 -0.306094 -0.607806 -0.839054 -0.973030 -0.994200 -0.900112
-0.701672 -0.421886 -0.093191 0.246309 0.557253 0.803594 0.956773 0.999033 0.925472
0.744621 0.477444 0.154917 -0.185570 -0.504544 -0.765025 -0.936816 -1.000000 -0.947253
-0.784689 -0.531155 -0.216044 0.124114 0.449883 0.723496 0.913234 0.997099 0.965368
0.821722 0.582812 0.276335 -0.062177 -0.393481 -0.679168 -0.886119 -0.990340 -0.979749
-0.855575 -0.632213 -0.335557 ]
lambda = 0.137712 :[ -0.364696 -0.679168 -0.900112 -0.997099 -0.956773 -0.784689 -0.504544
-0.154917 0.216044 0.557253 0.821722 0.973030 0.990340 0.871268 0.632213 0.306094 -0.062177
-0.421886 -0.723496 -0.925472 -1.000000 -0.936816 -0.744621 -0.449883 -0.093191 0.276335
0.607806 0.855575 0.985521 0.979749 0.839054 0.582812 0.246309 -0.124114 -0.477444
-0.765025 -0.947253 -0.999033 -0.913234 -0.701672 -0.393481 -0.031104 0.335557 0.656008
0.886119 0.994200 0.965368 0.803594 0.531155 0.185570 -0.185570 -0.531155 -0.803594
-0.965368 -0.994200 -0.886119 -0.656008 -0.335557 0.031104 0.393481 0.701672 0.913234
0.999033 0.947253 0.765025 0.477444 0.124114 -0.246309 -0.582812 -0.839054 -0.979749
-0.985521 -0.855575 -0.607806 -0.276335 0.093191 0.449883 0.744621 0.936816 1.000000
0.925472 0.723496 0.421886 0.062177 -0.306094 -0.632213 -0.871268 -0.990340 -0.973030
-0.821722 -0.557253 -0.216044 0.154917 0.504544 0.784689 0.956773 0.997099 0.900112
0.679168 0.364696 ]
lambda = 0.161294 :[ -0.393481 -0.723496 -0.936816 -0.999033 -0.900112 -0.656008 -0.306094
0.093191 0.477444 0.784689 0.965368 0.990340 0.855575 0.582812 0.216044 -0.185570 -0.557253
-0.839054 -0.985521 -0.973030 -0.803594 -0.504544 -0.124114 0.276335 0.632213 0.886119
0.997099 0.947253 0.744621 0.421886 0.031104 -0.364696 -0.701672 -0.925472 -1.000000
-0.913234 -0.679168 -0.335557 0.062177 0.449883 0.765025 0.956773 0.994200 0.871268
0.607806 0.246309 -0.154917 -0.531155 -0.821722 -0.979749 -0.979749 -0.821722 -0.531155
-0.154917 0.246309 0.607806 0.871268 0.994200 0.956773 0.765025 0.449883 0.062177 -0.335557
-0.679168 -0.913234 -1.000000 -0.925472 -0.701672 -0.364696 0.031104 0.421886 0.744621
0.947253 0.997099 0.886119 0.632213 0.276335 -0.124114 -0.504544 -0.803594 -0.973030
-0.985521 -0.839054 -0.557253 -0.185570 0.216044 0.582812 0.855575 0.990340 0.965368
0.784689 0.477444 0.093191 -0.306094 -0.656008 -0.900112 -0.999033 -0.936816 -0.723496
-0.393481 ]
lambda = 0.186655 :[ -0.421886 -0.765025 -0.965368 -0.985521 -0.821722 -0.504544 -0.093191
0.335557 0.701672 0.936816 0.997099 0.871268 0.582812 0.185570 -0.246309 -0.632213
-0.900112 -1.000000 -0.913234 -0.656008 -0.276335 0.154917 0.557253 0.855575 0.994200

```

```

0.947253 0.723496 0.364696 -0.062177 -0.477444 -0.803594 -0.979749 -0.973030 -0.784689
-0.449883 -0.031104 0.393481 0.744621 0.956773 0.990340 0.839054 0.531155 0.124114
-0.306094 -0.679168 -0.925472 -0.999033 -0.886119 -0.607806 -0.216044 0.216044 0.607806
0.886119 0.999033 0.925472 0.679168 0.306094 -0.124114 -0.531155 -0.839054 -0.990340
-0.956773 -0.744621 -0.393481 0.031104 0.449883 0.784689 0.973030 0.979749 0.803594
0.477444 0.062177 -0.364696 -0.723496 -0.947253 -0.994200 -0.855575 -0.557253 -0.154917
0.276335 0.656008 0.913234 1.000000 0.900112 0.632213 0.246309 -0.185570 -0.582812
-0.871268 -0.997099 -0.936816 -0.701672 -0.335557 0.093191 0.504544 0.821722 0.985521
0.965368 0.765025 0.421886 ]
lambda = 0.213770 :[ 0.449883 0.803594 0.985521 0.956773 0.723496 0.335557 -0.124114
-0.557253 -0.871268 -0.999033 -0.913234 -0.632213 -0.216044 0.246309 0.656008 0.925472
0.997099 0.855575 0.531155 0.093191 -0.364696 -0.744621 -0.965368 -0.979749 -0.784689
-0.421886 0.031104 0.477444 0.821722 0.990340 0.947253 0.701672 0.306094 -0.154917
-0.582812 -0.886119 -1.000000 -0.900112 -0.607806 -0.185570 0.276335 0.679168 0.936816
0.994200 0.839054 0.504544 0.062177 -0.393481 -0.765025 -0.973030 -0.973030 -0.765025
-0.393481 0.062177 0.504544 0.839054 0.994200 0.936816 0.679168 0.276335 -0.185570
-0.607806 -0.900112 -1.000000 -0.886119 -0.582812 -0.154917 0.306094 0.701672 0.947253
0.990340 0.821722 0.477444 0.031104 -0.421886 -0.784689 -0.979749 -0.965368 -0.744621
-0.364696 0.093191 0.531155 0.855575 0.997099 0.925472 0.656008 0.246309 -0.216044
-0.632213 -0.913234 -0.999033 -0.871268 -0.557253 -0.124114 0.335557 0.723496 0.956773
0.985521 0.803594 0.449883 ]
lambda = 0.242613 :[ 0.477444 0.839054 0.997099 0.913234 0.607806 0.154917 -0.335557
-0.744621 -0.973030 -0.965368 -0.723496 -0.306094 0.185570 0.632213 0.925472 0.994200
0.821722 0.449883 -0.031104 -0.504544 -0.855575 -0.999033 -0.900112 -0.582812 -0.124114
0.364696 0.765025 0.979749 0.956773 0.701672 0.276335 -0.216044 -0.656008 -0.936816
-0.990340 -0.803594 -0.421886 0.062177 0.531155 0.871268 1.000000 0.886119 0.557253
0.093191 -0.393481 -0.784689 -0.985521 -0.947253 -0.679168 -0.246309 0.246309 0.679168
0.947253 0.985521 0.784689 0.393481 -0.093191 -0.557253 -0.886119 -1.000000 -0.871268
-0.531155 -0.062177 0.421886 0.803594 0.990340 0.936816 0.656008 0.216044 -0.276335
-0.701672 -0.956773 -0.979749 -0.765025 -0.364696 0.124114 0.582812 0.900112 0.999033
0.855575 0.504544 0.031104 -0.449883 -0.821722 -0.994200 -0.925472 -0.632213 -0.185570
0.306094 0.723496 0.965368 0.973030 0.744621 0.335557 -0.154917 -0.607806 -0.913234
-0.997099 -0.839054 -0.477444 ]
lambda = 0.273157 :[ -0.504544 -0.871268 -1.000000 -0.855575 -0.477444 0.031104 0.531155
0.886119 0.999033 0.839054 0.449883 -0.062177 -0.557253 -0.900112 -0.997099 -0.821722
-0.421886 0.093191 0.582812 0.913234 0.994200 0.803594 0.393481 -0.124114 -0.607806
-0.925472 -0.990340 -0.784689 -0.364696 0.154917 0.632213 0.936816 0.985521 0.765025
0.335557 -0.185570 -0.656008 -0.947253 -0.979749 -0.744621 -0.306094 0.216044 0.679168
0.956773 0.973030 0.723496 0.276335 -0.246309 -0.701672 -0.965368 -0.965368 -0.701672
-0.246309 0.276335 0.723496 0.973030 0.956773 0.679168 0.216044 -0.306094 -0.744621
-0.979749 -0.947253 -0.656008 -0.185570 0.335557 0.765025 0.985521 0.936816 0.632213

```



```

0.154917 -0.364696 -0.784689 -0.990340 -0.925472 -0.607806 -0.124114 0.393481 0.803594
0.994200 0.913234 0.582812 0.093191 -0.421886 -0.821722 -0.997099 -0.900112 -0.557253
-0.062177 0.449883 0.839054 0.999033 0.886119 0.531155 0.031104 -0.477444 -0.855575
-1.000000 -0.871268 -0.504544 ]
lambda = 0.305371 :[ -0.531155 -0.900112 -0.994200 -0.784689 -0.335557 0.216044 0.701672
0.973030 0.947253 0.632213 0.124114 -0.421886 -0.839054 -1.000000 -0.855575 -0.449883
0.093191 0.607806 0.936816 0.979749 0.723496 0.246309 -0.306094 -0.765025 -0.990340
-0.913234 -0.557253 -0.031104 0.504544 0.886119 0.997099 0.803594 0.364696 -0.185570
-0.679168 -0.965368 -0.956773 -0.656008 -0.154917 0.393481 0.821722 0.999033 0.871268
0.477444 -0.062177 -0.582812 -0.925472 -0.985521 -0.744621 -0.276335 0.276335 0.744621
0.985521 0.925472 0.582812 0.062177 -0.477444 -0.871268 -0.999033 -0.821722 -0.393481
0.154917 0.656008 0.956773 0.965368 0.679168 0.185570 -0.364696 -0.803594 -0.997099
-0.886119 -0.504544 0.031104 0.557253 0.913234 0.990340 0.765025 0.306094 -0.246309
-0.723496 -0.979749 -0.936816 -0.607806 -0.093191 0.449883 0.855575 1.000000 0.839054
0.421886 -0.124114 -0.632213 -0.947253 -0.973030 -0.701672 -0.216044 0.335557 0.784689
0.994200 0.900112 0.531155 ]
lambda = 0.339224 :[ 0.557253 0.925472 0.979749 0.701672 0.185570 -0.393481 -0.839054
-1.000000 -0.821722 -0.364696 0.216044 0.723496 0.985521 0.913234 0.531155 -0.031104
-0.582812 -0.936816 -0.973030 -0.679168 -0.154917 0.421886 0.855575 0.999033 0.803594
0.335557 -0.246309 -0.744621 -0.990340 -0.900112 -0.504544 0.062177 0.607806 0.947253
0.965368 0.656008 0.124114 -0.449883 -0.871268 -0.997099 -0.784689 -0.306094 0.276335
0.765025 0.994200 0.886119 0.477444 -0.093191 -0.632213 -0.956773 -0.956773 -0.632213
-0.093191 0.477444 0.886119 0.994200 0.765025 0.276335 -0.306094 -0.784689 -0.997099
-0.871268 -0.449883 0.124114 0.656008 0.965368 0.947253 0.607806 0.062177 -0.504544
-0.900112 -0.990340 -0.744621 -0.246309 0.335557 0.803594 0.999033 0.855575 0.421886
-0.154917 -0.679168 -0.973030 -0.936816 -0.582812 -0.031104 0.531155 0.913234 0.985521
0.723496 0.216044 -0.364696 -0.821722 -1.000000 -0.839054 -0.393481 0.185570 0.701672
0.979749 0.925472 0.557253 ]
lambda = 0.374684 :[ -0.582812 -0.947253 -0.956773 -0.607806 -0.031104 0.557253 0.936816
0.965368 0.632213 0.062177 -0.531155 -0.925472 -0.973030 -0.656008 -0.093191 0.504544
0.913234 0.979749 0.679168 0.124114 -0.477444 -0.900112 -0.985521 -0.701672 -0.154917
0.449883 0.886119 0.990340 0.723496 0.185570 -0.421886 -0.871268 -0.994200 -0.744621
-0.216044 0.393481 0.855575 0.997099 0.765025 0.246309 -0.364696 -0.839054 -0.999033
-0.784689 -0.276335 0.335557 0.821722 1.000000 0.803594 0.306094 -0.306094 -0.803594
-1.000000 -0.821722 -0.335557 0.276335 0.784689 0.999033 0.839054 0.364696 -0.246309
-0.765025 -0.997099 -0.855575 -0.393481 0.216044 0.744621 0.994200 0.871268 0.421886
-0.185570 -0.723496 -0.990340 -0.886119 -0.449883 0.154917 0.701672 0.985521 0.900112
0.477444 -0.124114 -0.679168 -0.979749 -0.913234 -0.504544 0.093191 0.656008 0.973030
0.925472 0.531155 -0.062177 -0.632213 -0.965368 -0.936816 -0.557253 0.031104 0.607806
0.956773 0.947253 0.582812 ]
lambda = 0.411717 :[ -0.607806 -0.965368 -0.925472 -0.504544 0.124114 0.701672 0.990340

```

```

0.871268 0.393481 -0.246309 -0.784689 -1.000000 -0.803594 -0.276335 0.364696 0.855575
0.994200 0.723496 0.154917 -0.477444 -0.913234 -0.973030 -0.632213 -0.031104 0.582812
0.956773 0.936816 0.531155 -0.093191 -0.679168 -0.985521 -0.886119 -0.421886 0.216044
0.765025 0.999033 0.821722 0.306094 -0.335557 -0.839054 -0.997099 -0.744621 -0.185570
0.449883 0.900112 0.979749 0.656008 0.062177 -0.557253 -0.947253 -0.947253 -0.557253
0.062177 0.656008 0.979749 0.900112 0.449883 -0.185570 -0.744621 -0.997099 -0.839054
-0.335557 0.306094 0.821722 0.999033 0.765025 0.216044 -0.421886 -0.886119 -0.985521
-0.679168 -0.093191 0.531155 0.936816 0.956773 0.582812 -0.031104 -0.632213 -0.973030
-0.913234 -0.477444 0.154917 0.723496 0.994200 0.855575 0.364696 -0.276335 -0.803594
-1.000000 -0.784689 -0.246309 0.393481 0.871268 0.990340 0.701672 0.124114 -0.504544
-0.925472 -0.965368 -0.607806 ]

lambda = 0.450286 :[ -0.632213 -0.979749 -0.886119 -0.393481 0.276335 0.821722 0.997099
0.723496 0.124114 -0.531155 -0.947253 -0.936816 -0.504544 0.154917 0.744621 0.999033
0.803594 0.246309 -0.421886 -0.900112 -0.973030 -0.607806 0.031104 0.656008 0.985521
0.871268 0.364696 -0.306094 -0.839054 -0.994200 -0.701672 -0.093191 0.557253 0.956773
0.925472 0.477444 -0.185570 -0.765025 -1.000000 -0.784689 -0.216044 0.449883 0.913234
0.965368 0.582812 -0.062177 -0.679168 -0.990340 -0.855575 -0.335557 0.335557 0.855575
0.990340 0.679168 0.062177 -0.582812 -0.965368 -0.913234 -0.449883 0.216044 0.784689
1.000000 0.765025 0.185570 -0.477444 -0.925472 -0.956773 -0.557253 0.093191 0.701672
0.994200 0.839054 0.306094 -0.364696 -0.871268 -0.985521 -0.656008 -0.031104 0.607806
0.973030 0.900112 0.421886 -0.246309 -0.803594 -0.999033 -0.744621 -0.154917 0.504544
0.936816 0.947253 0.531155 -0.124114 -0.723496 -0.997099 -0.821722 -0.276335 0.393481
0.886119 0.979749 0.632213 ]

lambda = 0.490354 :[ -0.656008 -0.990340 -0.839054 -0.276335 0.421886 0.913234 0.956773
0.531155 -0.154917 -0.765025 -1.000000 -0.744621 -0.124114 0.557253 0.965368 0.900112
0.393481 -0.306094 -0.855575 -0.985521 -0.632213 0.031104 0.679168 0.994200 0.821722
0.246309 -0.449883 -0.925472 -0.947253 -0.504544 0.185570 0.784689 0.999033 0.723496
0.093191 -0.582812 -0.973030 -0.886119 -0.364696 0.335557 0.871268 0.979749 0.607806
-0.062177 -0.701672 -0.997099 -0.803594 -0.216044 0.477444 0.936816 0.936816 0.477444
-0.216044 -0.803594 -0.997099 -0.701672 -0.062177 0.607806 0.979749 0.871268 0.335557
-0.364696 -0.886119 -0.973030 -0.582812 0.093191 0.723496 0.999033 0.784689 0.185570
-0.504544 -0.947253 -0.925472 -0.449883 0.246309 0.821722 0.994200 0.679168 0.031104
-0.632213 -0.985521 -0.855575 -0.306094 0.393481 0.900112 0.965368 0.557253 -0.124114
-0.744621 -1.000000 -0.765025 -0.154917 0.531155 0.956773 0.913234 0.421886 -0.276335
-0.839054 -0.990340 -0.656008 ]

lambda = 0.531883 :[ -0.679168 -0.997099 -0.784689 -0.154917 0.557253 0.973030 0.871268
0.306094 -0.421886 -0.925472 -0.936816 -0.449883 0.276335 0.855575 0.979749 0.582812
-0.124114 -0.765025 -0.999033 -0.701672 -0.031104 0.656008 0.994200 0.803594 0.185570
-0.531155 -0.965368 -0.886119 -0.335557 0.393481 0.913234 0.947253 0.477444 -0.246309
-0.839054 -0.985521 -0.607806 0.093191 0.744621 1.000000 0.723496 0.062177 -0.632213
-0.990340 -0.821722 -0.216044 0.504544 0.956773 0.900112 0.364696 -0.364696 -0.900112

```

```

-0.956773 -0.504544 0.216044 0.821722 0.990340 0.632213 -0.062177 -0.723496 -1.000000
-0.744621 -0.093191 0.607806 0.985521 0.839054 0.246309 -0.477444 -0.947253 -0.913234
-0.393481 0.335557 0.886119 0.965368 0.531155 -0.185570 -0.803594 -0.994200 -0.656008
0.031104 0.701672 0.999033 0.765025 0.124114 -0.582812 -0.979749 -0.855575 -0.276335
0.449883 0.936816 0.925472 0.421886 -0.306094 -0.871268 -0.973030 -0.557253 0.154917
0.784689 0.997099 0.679168 ]
lambda = 0.574832 :[ -0.701672 -1.000000 -0.723496 -0.031104 0.679168 0.999033 0.744621
0.062177 -0.656008 -0.997099 -0.765025 -0.093191 0.632213 0.994200 0.784689 0.124114
-0.607806 -0.990340 -0.803594 -0.154917 0.582812 0.985521 0.821722 0.185570 -0.557253
-0.979749 -0.839054 -0.216044 0.531155 0.973030 0.855575 0.246309 -0.504544 -0.965368
-0.871268 -0.276335 0.477444 0.956773 0.886119 0.306094 -0.449883 -0.947253 -0.900112
-0.335557 0.421886 0.936816 0.913234 0.364696 -0.393481 -0.925472 -0.925472 -0.393481
0.364696 0.913234 0.936816 0.421886 -0.335557 -0.900112 -0.947253 -0.449883 0.306094
0.886119 0.956773 0.477444 -0.276335 -0.871268 -0.965368 -0.504544 0.246309 0.855575
0.973030 0.531155 -0.216044 -0.839054 -0.979749 -0.557253 0.185570 0.821722 0.985521
0.582812 -0.154917 -0.803594 -0.990340 -0.607806 0.124114 0.784689 0.994200 0.632213
-0.093191 -0.765025 -0.997099 -0.656008 0.062177 0.744621 0.999033 0.679168 -0.031104
-0.723496 -1.000000 -0.701672 ]
lambda = 0.619160 :[ -0.723496 -0.999033 -0.656008 0.093191 0.784689 0.990340 0.582812
-0.185570 -0.839054 -0.973030 -0.504544 0.276335 0.886119 0.947253 0.421886 -0.364696
-0.925472 -0.913234 -0.335557 0.449883 0.956773 0.871268 0.246309 -0.531155 -0.979749
-0.821722 -0.154917 0.607806 0.994200 0.765025 0.062177 -0.679168 -1.000000 -0.701672
0.031104 0.744621 0.997099 0.632213 -0.124114 -0.803594 -0.985521 -0.557253 0.216044
0.855575 0.965368 0.477444 -0.306094 -0.900112 -0.936816 -0.393481 0.393481 0.936816
0.900112 0.306094 -0.477444 -0.965368 -0.855575 -0.216044 0.557253 0.985521 0.803594
0.124114 -0.632213 -0.997099 -0.744621 -0.031104 0.701672 1.000000 0.679168 -0.062177
-0.765025 -0.994200 -0.607806 0.154917 0.821722 0.979749 0.531155 -0.246309 -0.871268
-0.956773 -0.449883 0.335557 0.913234 0.925472 0.364696 -0.421886 -0.947253 -0.886119
-0.276335 0.504544 0.973030 0.839054 0.185570 -0.582812 -0.990340 -0.784689 -0.093191
0.656008 0.999033 0.723496 ]
lambda = 0.664824 :[ 0.744621 0.994200 0.582812 -0.216044 -0.871268 -0.947253 -0.393481
0.421886 0.956773 0.855575 0.185570 -0.607806 -0.997099 -0.723496 0.031104 0.765025
0.990340 0.557253 -0.246309 -0.886119 -0.936816 -0.364696 0.449883 0.965368 0.839054
0.154917 -0.632213 -0.999033 -0.701672 0.062177 0.784689 0.985521 0.531155 -0.276335
-0.900112 -0.925472 -0.335557 0.477444 0.973030 0.821722 0.124114 -0.656008 -1.000000
-0.679168 0.093191 0.803594 0.979749 0.504544 -0.306094 -0.913234 -0.913234 -0.306094
0.504544 0.979749 0.803594 0.093191 -0.679168 -1.000000 -0.656008 0.124114 0.821722
0.973030 0.477444 -0.335557 -0.925472 -0.900112 -0.276335 0.531155 0.985521 0.784689
0.062177 -0.701672 -0.999033 -0.632213 0.154917 0.839054 0.965368 0.449883 -0.364696
-0.936816 -0.886119 -0.246309 0.557253 0.990340 0.765025 0.031104 -0.723496 -0.997099
-0.607806 0.185570 0.855575 0.956773 0.421886 -0.393481 -0.947253 -0.871268 -0.216044

```

```

0.582812 0.994200 0.744621 ]
lambda = 0.711779 :[ -0.765025 -0.985521 -0.504544 0.335557 0.936816 0.871268 0.185570
-0.632213 -1.000000 -0.656008 0.154917 0.855575 0.947253 0.364696 -0.477444 -0.979749
-0.784689 -0.031104 0.744621 0.990340 0.531155 -0.306094 -0.925472 -0.886119 -0.216044
0.607806 0.999033 0.679168 -0.124114 -0.839054 -0.956773 -0.393481 0.449883 0.973030
0.803594 0.062177 -0.723496 -0.994200 -0.557253 0.276335 0.913234 0.900112 0.246309
-0.582812 -0.997099 -0.701672 0.093191 0.821722 0.965368 0.421886 -0.421886 -0.965368
-0.821722 -0.093191 0.701672 0.997099 0.582812 -0.246309 -0.900112 -0.913234 -0.276335
0.557253 0.994200 0.723496 -0.062177 -0.803594 -0.973030 -0.449883 0.393481 0.956773
0.839054 0.124114 -0.679168 -0.999033 -0.607806 0.216044 0.886119 0.925472 0.306094
-0.531155 -0.990340 -0.744621 0.031104 0.784689 0.979749 0.477444 -0.364696 -0.947253
-0.855575 -0.154917 0.656008 1.000000 0.632213 -0.185570 -0.871268 -0.936816 -0.335557
0.504544 0.985521 0.765025 ]
lambda = 0.759981 :[ 0.784689 0.973030 0.421886 -0.449883 -0.979749 -0.765025 0.031104
0.803594 0.965368 0.393481 -0.477444 -0.985521 -0.744621 0.062177 0.821722 0.956773
0.364696 -0.504544 -0.990340 -0.723496 0.093191 0.839054 0.947253 0.335557 -0.531155
-0.994200 -0.701672 0.124114 0.855575 0.936816 0.306094 -0.557253 -0.997099 -0.679168
0.154917 0.871268 0.925472 0.276335 -0.582812 -0.999033 -0.656008 0.185570 0.886119
0.913234 0.246309 -0.607806 -1.000000 -0.632213 0.216044 0.900112 0.900112 0.216044
-0.632213 -1.000000 -0.607806 0.246309 0.913234 0.886119 0.185570 -0.656008 -0.999033
-0.582812 0.276335 0.925472 0.871268 0.154917 -0.679168 -0.997099 -0.557253 0.306094
0.936816 0.855575 0.124114 -0.701672 -0.994200 -0.531155 0.335557 0.947253 0.839054
0.093191 -0.723496 -0.990340 -0.504544 0.364696 0.956773 0.821722 0.062177 -0.744621
-0.985521 -0.477444 0.393481 0.965368 0.803594 0.031104 -0.765025 -0.979749 -0.449883
0.421886 0.973030 0.784689 ]
lambda = 0.809382 :[ 0.803594 0.956773 0.335557 -0.557253 -0.999033 -0.632213 0.246309
0.925472 0.855575 0.093191 -0.744621 -0.979749 -0.421886 0.477444 0.990340 0.701672
-0.154917 -0.886119 -0.900112 -0.185570 0.679168 0.994200 0.504544 -0.393481 -0.973030
-0.765025 0.062177 0.839054 0.936816 0.276335 -0.607806 -1.000000 -0.582812 0.306094
0.947253 0.821722 0.031104 -0.784689 -0.965368 -0.364696 0.531155 0.997099 0.656008
-0.216044 -0.913234 -0.871268 -0.124114 0.723496 0.985521 0.449883 -0.449883 -0.985521
-0.723496 0.124114 0.871268 0.913234 0.216044 -0.656008 -0.997099 -0.531155 0.364696
0.965368 0.784689 -0.031104 -0.821722 -0.947253 -0.306094 0.582812 1.000000 0.607806
-0.276335 -0.936816 -0.839054 -0.062177 0.765025 0.973030 0.393481 -0.504544 -0.994200
-0.679168 0.185570 0.900112 0.886119 0.154917 -0.701672 -0.990340 -0.477444 0.421886
0.979749 0.744621 -0.093191 -0.855575 -0.925472 -0.246309 0.632213 0.999033 0.557253
-0.335557 -0.956773 -0.803594 ]
lambda = 0.859935 :[ 0.821722 0.936816 0.246309 -0.656008 -0.994200 -0.477444 0.449883
0.990340 0.679168 -0.216044 -0.925472 -0.839054 -0.031104 0.803594 0.947253 0.276335
-0.632213 -0.997099 -0.504544 0.421886 0.985521 0.701672 -0.185570 -0.913234 -0.855575
-0.062177 0.784689 0.956773 0.306094 -0.607806 -0.999033 -0.531155 0.393481 0.979749

```

```

0.723496 -0.154917 -0.900112 -0.871268 -0.093191 0.765025 0.965368 0.335557 -0.582812
-1.000000 -0.557253 0.364696 0.973030 0.744621 -0.124114 -0.886119 -0.886119 -0.124114
0.744621 0.973030 0.364696 -0.557253 -1.000000 -0.582812 0.335557 0.965368 0.765025
-0.093191 -0.871268 -0.900112 -0.154917 0.723496 0.979749 0.393481 -0.531155 -0.999033
-0.607806 0.306094 0.956773 0.784689 -0.062177 -0.855575 -0.913234 -0.185570 0.701672
0.985521 0.421886 -0.504544 -0.997099 -0.632213 0.276335 0.947253 0.803594 -0.031104
-0.839054 -0.925472 -0.216044 0.679168 0.990340 0.449883 -0.477444 -0.994200 -0.656008
0.246309 0.936816 0.821722 ]
lambda = 0.911592 : [ 0.839054 0.913234 0.154917 -0.744621 -0.965368 -0.306094 0.632213
0.994200 0.449883 -0.504544 -0.999033 -0.582812 0.364696 0.979749 0.701672 -0.216044
-0.936816 -0.803594 0.062177 0.871268 0.886119 0.093191 -0.784689 -0.947253 -0.246309
0.679168 0.985521 0.393481 -0.557253 -1.000000 -0.531155 0.421886 0.990340 0.656008
-0.276335 -0.956773 -0.765025 0.124114 0.900112 0.855575 0.031104 -0.821722 -0.925472
-0.185570 0.723496 0.973030 0.335557 -0.607806 -0.997099 -0.477444 0.477444 0.997099
0.607806 -0.335557 -0.973030 -0.723496 0.185570 0.925472 0.821722 -0.031104 -0.855575
-0.900112 -0.124114 0.765025 0.956773 0.276335 -0.656008 -0.990340 -0.421886 0.531155
1.000000 0.557253 -0.393481 -0.985521 -0.679168 0.246309 0.947253 0.784689 -0.093191
-0.886119 -0.871268 -0.062177 0.803594 0.936816 0.216044 -0.701672 -0.979749 -0.364696
0.582812 0.999033 0.504544 -0.449883 -0.994200 -0.632213 0.306094 0.965368 0.744621
-0.154917 -0.913234 -0.839054 ]
lambda = 0.964301 : [ -0.855575 -0.886119 -0.062177 0.821722 0.913234 0.124114 -0.784689
-0.936816 -0.185570 0.744621 0.956773 0.246309 -0.701672 -0.973030 -0.306094 0.656008
0.985521 0.364696 -0.607806 -0.994200 -0.421886 0.557253 0.999033 0.477444 -0.504544
-1.000000 -0.531155 0.449883 0.997099 0.582812 -0.393481 -0.990340 -0.632213 0.335557
0.979749 0.679168 -0.276335 -0.965368 -0.723496 0.216044 0.947253 0.765025 -0.154917
-0.925472 -0.803594 0.093191 0.900112 0.839054 -0.031104 -0.871268 -0.871268 -0.031104
0.839054 0.900112 0.093191 -0.803594 -0.925472 -0.154917 0.765025 0.947253 0.216044
-0.723496 -0.965368 -0.276335 0.679168 0.979749 0.335557 -0.632213 -0.990340 -0.393481
0.582812 0.997099 0.449883 -0.531155 -1.000000 -0.504544 0.477444 0.999033 0.557253
-0.421886 -0.994200 -0.607806 0.364696 0.985521 0.656008 -0.306094 -0.973030 -0.701672
0.246309 0.956773 0.744621 -0.185570 -0.936816 -0.784689 0.124114 0.913234 0.821722
-0.062177 -0.886119 -0.855575 ]
lambda = 1.018012 : [ 0.871268 0.855575 -0.031104 -0.886119 -0.839054 0.062177 0.900112
0.821722 -0.093191 -0.913234 -0.803594 0.124114 0.925472 0.784689 -0.154917 -0.936816
-0.765025 0.185570 0.947253 0.744621 -0.216044 -0.956773 -0.723496 0.246309 0.965368
0.701672 -0.276335 -0.973030 -0.679168 0.306094 0.979749 0.656008 -0.335557 -0.985521
-0.632213 0.364696 0.990340 0.607806 -0.393481 -0.994200 -0.582812 0.421886 0.997099
0.557253 -0.449883 -0.999033 -0.531155 0.477444 1.000000 0.504544 -0.504544 -1.000000
-0.477444 0.531155 0.999033 0.449883 -0.557253 -0.997099 -0.421886 0.582812 0.994200
0.393481 -0.607806 -0.990340 -0.364696 0.632213 0.985521 0.335557 -0.656008 -0.979749
-0.306094 0.679168 0.973030 0.276335 -0.701672 -0.965368 -0.246309 0.723496 0.956773

```

```

0.216044 -0.744621 -0.947253 -0.185570 0.765025 0.936816 0.154917 -0.784689 -0.925472
-0.124114 0.803594 0.913234 0.093191 -0.821722 -0.900112 -0.062177 0.839054 0.886119
0.031104 -0.855575 -0.871268 ]
lambda = 1.072673 :[ -0.886119 -0.821722 0.124114 0.936816 0.744621 -0.246309 -0.973030
-0.656008 0.364696 0.994200 0.557253 -0.477444 -1.000000 -0.449883 0.582812 0.990340
0.335557 -0.679168 -0.965368 -0.216044 0.765025 0.925472 0.093191 -0.839054 -0.871268
0.031104 0.900112 0.803594 -0.154917 -0.947253 -0.723496 0.276335 0.979749 0.632213
-0.393481 -0.997099 -0.531155 0.504544 0.999033 0.421886 -0.607806 -0.985521 -0.306094
0.701672 0.956773 0.185570 -0.784689 -0.913234 -0.062177 0.855575 0.855575 -0.062177
-0.913234 -0.784689 0.185570 0.956773 0.701672 -0.306094 -0.985521 -0.607806 0.421886
0.999033 0.504544 -0.531155 -0.997099 -0.393481 0.632213 0.979749 0.276335 -0.723496
-0.947253 -0.154917 0.803594 0.900112 0.031104 -0.871268 -0.839054 0.093191 0.925472
0.765025 -0.216044 -0.965368 -0.679168 0.335557 0.990340 0.582812 -0.449883 -1.000000
-0.477444 0.557253 0.994200 0.364696 -0.656008 -0.973030 -0.246309 0.744621 0.936816
0.124114 -0.821722 -0.886119 ]
lambda = 1.128231 :[ -0.900112 -0.784689 0.216044 0.973030 0.632213 -0.421886 -1.000000
-0.449883 0.607806 0.979749 0.246309 -0.765025 -0.913234 -0.031104 0.886119 0.803594
-0.185570 -0.965368 -0.656008 0.393481 0.999033 0.477444 -0.582812 -0.985521 -0.276335
0.744621 0.925472 0.062177 -0.871268 -0.821722 0.154917 0.956773 0.679168 -0.364696
-0.997099 -0.504544 0.557253 0.990340 0.306094 -0.723496 -0.936816 -0.093191 0.855575
0.839054 -0.124114 -0.947253 -0.701672 0.335557 0.994200 0.531155 -0.531155 -0.994200
-0.335557 0.701672 0.947253 0.124114 -0.839054 -0.855575 0.093191 0.936816 0.723496
-0.306094 -0.990340 -0.557253 0.504544 0.997099 0.364696 -0.679168 -0.956773 -0.154917
0.821722 0.871268 -0.062177 -0.925472 -0.744621 0.276335 0.985521 0.582812 -0.477444
-0.999033 -0.393481 0.656008 0.965368 0.185570 -0.803594 -0.886119 0.031104 0.913234
0.765025 -0.246309 -0.979749 -0.607806 0.449883 1.000000 0.421886 -0.632213 -0.973030
-0.216044 0.784689 0.900112 ]
lambda = 1.184633 :[ 0.913234 0.744621 -0.306094 -0.994200 -0.504544 0.582812 0.979749
0.216044 -0.803594 -0.871268 0.093191 0.947253 0.679168 -0.393481 -1.000000 -0.421886
0.656008 0.956773 0.124114 -0.855575 -0.821722 0.185570 0.973030 0.607806 -0.477444
-0.997099 -0.335557 0.723496 0.925472 0.031104 -0.900112 -0.765025 0.276335 0.990340
0.531155 -0.557253 -0.985521 -0.246309 0.784689 0.886119 -0.062177 -0.936816 -0.701672
0.364696 0.999033 0.449883 -0.632213 -0.965368 -0.154917 0.839054 0.839054 -0.154917
-0.965368 -0.632213 0.449883 0.999033 0.364696 -0.701672 -0.936816 -0.062177 0.886119
0.784689 -0.246309 -0.985521 -0.557253 0.531155 0.990340 0.276335 -0.765025 -0.900112
0.031104 0.925472 0.723496 -0.335557 -0.997099 -0.477444 0.607806 0.973030 0.185570
-0.821722 -0.855575 0.124114 0.956773 0.656008 -0.421886 -1.000000 -0.393481 0.679168
0.947253 0.093191 -0.871268 -0.803594 0.216044 0.979749 0.582812 -0.504544 -0.994200
-0.306094 0.744621 0.913234 ]
lambda = 1.241823 :[ 0.925472 0.701672 -0.393481 -1.000000 -0.364696 0.723496 0.913234
-0.031104 -0.936816 -0.679168 0.421886 0.999033 0.335557 -0.744621 -0.900112 0.062177

```

```

0.947253 0.656008 -0.449883 -0.997099 -0.306094 0.765025 0.886119 -0.093191 -0.956773
-0.632213 0.477444 0.994200 0.276335 -0.784689 -0.871268 0.124114 0.965368 0.607806
-0.504544 -0.990340 -0.246309 0.803594 0.855575 -0.154917 -0.973030 -0.582812 0.531155
0.985521 0.216044 -0.821722 -0.839054 0.185570 0.979749 0.557253 -0.557253 -0.979749
-0.185570 0.839054 0.821722 -0.216044 -0.985521 -0.531155 0.582812 0.973030 0.154917
-0.855575 -0.803594 0.246309 0.990340 0.504544 -0.607806 -0.965368 -0.124114 0.871268
0.784689 -0.276335 -0.994200 -0.477444 0.632213 0.956773 0.093191 -0.886119 -0.765025
0.306094 0.997099 0.449883 -0.656008 -0.947253 -0.062177 0.900112 0.744621 -0.335557
-0.999033 -0.421886 0.679168 0.936816 0.031104 -0.913234 -0.723496 0.364696 1.000000
0.393481 -0.701672 -0.925472 ]
lambda = 1.299747 :[ -0.936816 -0.656008 0.477444 0.990340 0.216044 -0.839054 -0.803594
0.276335 0.997099 0.421886 -0.701672 -0.913234 0.062177 0.956773 0.607806 -0.531155
-0.979749 -0.154917 0.871268 0.765025 -0.335557 -1.000000 -0.364696 0.744621 0.886119
-0.124114 -0.973030 -0.557253 0.582812 0.965368 0.093191 -0.900112 -0.723496 0.393481
0.999033 0.306094 -0.784689 -0.855575 0.185570 0.985521 0.504544 -0.632213 -0.947253
-0.031104 0.925472 0.679168 -0.449883 -0.994200 -0.246309 0.821722 0.821722 -0.246309
-0.994200 -0.449883 0.679168 0.925472 -0.031104 -0.947253 -0.632213 0.504544 0.985521
0.185570 -0.855575 -0.784689 0.306094 0.999033 0.393481 -0.723496 -0.900112 0.093191
0.965368 0.582812 -0.557253 -0.973030 -0.124114 0.886119 0.744621 -0.364696 -1.000000
-0.335557 0.765025 0.871268 -0.154917 -0.979749 -0.531155 0.607806 0.956773 0.062177
-0.913234 -0.701672 0.421886 0.997099 0.276335 -0.803594 -0.839054 0.216044 0.990340
0.477444 -0.656008 -0.936816 ]
lambda = 1.358348 :[ 0.947253 0.607806 -0.557253 -0.965368 -0.062177 0.925472 0.656008
-0.504544 -0.979749 -0.124114 0.900112 0.701672 -0.449883 -0.990340 -0.185570 0.871268
0.744621 -0.393481 -0.997099 -0.246309 0.839054 0.784689 -0.335557 -1.000000 -0.306094
0.803594 0.821722 -0.276335 -0.999033 -0.364696 0.765025 0.855575 -0.216044 -0.994200
-0.421886 0.723496 0.886119 -0.154917 -0.985521 -0.477444 0.679168 0.913234 -0.093191
-0.973030 -0.531155 0.632213 0.936816 -0.031104 -0.956773 -0.582812 0.582812 0.956773
0.031104 -0.936816 -0.632213 0.531155 0.973030 0.093191 -0.913234 -0.679168 0.477444
0.985521 0.154917 -0.886119 -0.723496 0.421886 0.994200 0.216044 -0.855575 -0.765025
0.364696 0.999033 0.276335 -0.821722 -0.803594 0.306094 1.000000 0.335557 -0.784689
-0.839054 0.246309 0.997099 0.393481 -0.744621 -0.871268 0.185570 0.990340 0.449883
-0.701672 -0.900112 0.124114 0.979749 0.504544 -0.656008 -0.925472 0.062177 0.965368
0.557253 -0.607806 -0.947253 ]
lambda = 1.417571 :[ -0.956773 -0.557253 0.632213 0.925472 -0.093191 -0.979749 -0.477444
0.701672 0.886119 -0.185570 -0.994200 -0.393481 0.765025 0.839054 -0.276335 -1.000000
-0.306094 0.821722 0.784689 -0.364696 -0.997099 -0.216044 0.871268 0.723496 -0.449883
-0.985521 -0.124114 0.913234 0.656008 -0.531155 -0.965368 -0.031104 0.947253 0.582812
-0.607806 -0.936816 0.062177 0.973030 0.504544 -0.679168 -0.900112 0.154917 0.990340
0.421886 -0.744621 -0.855575 0.246309 0.999033 0.335557 -0.803594 -0.803594 0.335557
0.999033 0.246309 -0.855575 -0.744621 0.421886 0.990340 0.154917 -0.900112 -0.679168

```

```

0.504544 0.973030 0.062177 -0.936816 -0.607806 0.582812 0.947253 -0.031104 -0.965368
-0.531155 0.656008 0.913234 -0.124114 -0.985521 -0.449883 0.723496 0.871268 -0.216044
-0.997099 -0.364696 0.784689 0.821722 -0.306094 -1.000000 -0.276335 0.839054 0.765025
-0.393481 -0.994200 -0.185570 0.886119 0.701672 -0.477444 -0.979749 -0.093191 0.925472
0.632213 -0.557253 -0.956773 ]
lambda = 1.477356 :[ -0.965368 -0.504544 0.701672 0.871268 -0.246309 -1.000000 -0.276335
0.855575 0.723496 -0.477444 -0.973030 -0.031104 0.956773 0.531155 -0.679168 -0.886119
0.216044 0.999033 0.306094 -0.839054 -0.744621 0.449883 0.979749 0.062177 -0.947253
-0.557253 0.656008 0.900112 -0.185570 -0.997099 -0.335557 0.821722 0.765025 -0.421886
-0.985521 -0.093191 0.936816 0.582812 -0.632213 -0.913234 0.154917 0.994200 0.364696
-0.803594 -0.784689 0.393481 0.990340 0.124114 -0.925472 -0.607806 0.607806 0.925472
-0.124114 -0.990340 -0.393481 0.784689 0.803594 -0.364696 -0.994200 -0.154917 0.913234
0.632213 -0.582812 -0.936816 0.093191 0.985521 0.421886 -0.765025 -0.821722 0.335557
0.997099 0.185570 -0.900112 -0.656008 0.557253 0.947253 -0.062177 -0.979749 -0.449883
0.744621 0.839054 -0.306094 -0.999033 -0.216044 0.886119 0.679168 -0.531155 -0.956773
0.031104 0.973030 0.477444 -0.723496 -0.855575 0.276335 1.000000 0.246309 -0.871268
-0.701672 0.504544 0.965368 ]
lambda = 1.537647 :[ 0.973030 0.449883 -0.765025 -0.803594 0.393481 0.985521 0.062177
-0.956773 -0.504544 0.723496 0.839054 -0.335557 -0.994200 -0.124114 0.936816 0.557253
-0.679168 -0.871268 0.276335 0.999033 0.185570 -0.913234 -0.607806 0.632213 0.900112
-0.216044 -1.000000 -0.246309 0.886119 0.656008 -0.582812 -0.925472 0.154917 0.997099
0.306094 -0.855575 -0.701672 0.531155 0.947253 -0.093191 -0.990340 -0.364696 0.821722
0.744621 -0.477444 -0.965368 0.031104 0.979749 0.421886 -0.784689 -0.784689 0.421886
0.979749 0.031104 -0.965368 -0.477444 0.744621 0.821722 -0.364696 -0.990340 -0.093191
0.947253 0.531155 -0.701672 -0.855575 0.306094 0.997099 0.154917 -0.925472 -0.582812
0.656008 0.886119 -0.246309 -1.000000 -0.216044 0.900112 0.632213 -0.607806 -0.913234
0.185570 0.999033 0.276335 -0.871268 -0.679168 0.557253 0.936816 -0.124114 -0.994200
-0.335557 0.839054 0.723496 -0.504544 -0.956773 0.062177 0.985521 0.393481 -0.803594
-0.765025 0.449883 0.973030 ]
lambda = 1.598386 :[ 0.979749 0.393481 -0.821722 -0.723496 0.531155 0.936816 -0.154917
-0.999033 -0.246309 0.900112 0.607806 -0.656008 -0.871268 0.306094 0.994200 0.093191
-0.956773 -0.477444 0.765025 0.784689 -0.449883 -0.965368 0.062177 0.990340 0.335557
-0.855575 -0.679168 0.582812 0.913234 -0.216044 -1.000000 -0.185570 0.925472 0.557253
-0.701672 -0.839054 0.364696 0.985521 0.031104 -0.973030 -0.421886 0.803594 0.744621
-0.504544 -0.947253 0.124114 0.997099 0.276335 -0.886119 -0.632213 0.632213 0.886119
-0.276335 -0.997099 -0.124114 0.947253 0.504544 -0.744621 -0.803594 0.421886 0.973030
-0.031104 -0.985521 -0.364696 0.839054 0.701672 -0.557253 -0.925472 0.185570 1.000000
0.216044 -0.913234 -0.582812 0.679168 0.855575 -0.335557 -0.990340 -0.062177 0.965368
0.449883 -0.784689 -0.765025 0.477444 0.956773 -0.093191 -0.994200 -0.306094 0.871268
0.656008 -0.607806 -0.900112 0.246309 0.999033 0.154917 -0.936816 -0.531155 0.723496
0.821722 -0.393481 -0.979749 ]

```



```

lambda = 1.659513 : [ -0.985521 -0.335557 0.871268 0.632213 -0.656008 -0.855575 0.364696
0.979749 -0.031104 -0.990340 -0.306094 0.886119 0.607806 -0.679168 -0.839054 0.393481
0.973030 -0.062177 -0.994200 -0.276335 0.900112 0.582812 -0.701672 -0.821722 0.421886
0.965368 -0.093191 -0.997099 -0.246309 0.913234 0.557253 -0.723496 -0.803594 0.449883
0.956773 -0.124114 -0.999033 -0.216044 0.925472 0.531155 -0.744621 -0.784689 0.477444
0.947253 -0.154917 -1.000000 -0.185570 0.936816 0.504544 -0.765025 -0.765025 0.504544
0.936816 -0.185570 -1.000000 -0.154917 0.947253 0.477444 -0.784689 -0.744621 0.531155
0.925472 -0.216044 -0.999033 -0.124114 0.956773 0.449883 -0.803594 -0.723496 0.557253
0.913234 -0.246309 -0.997099 -0.093191 0.965368 0.421886 -0.821722 -0.701672 0.582812
0.900112 -0.276335 -0.994200 -0.062177 0.973030 0.393481 -0.839054 -0.679168 0.607806
0.886119 -0.306094 -0.990340 -0.031104 0.979749 0.364696 -0.855575 -0.656008 0.632213
0.871268 -0.335557 -0.985521 ]
lambda = 1.720969 : [ 0.990340 0.276335 -0.913234 -0.531155 0.765025 0.744621 -0.557253
-0.900112 0.306094 0.985521 -0.031104 -0.994200 -0.246309 0.925472 0.504544 -0.784689
-0.723496 0.582812 0.886119 -0.335557 -0.979749 0.062177 0.997099 0.216044 -0.936816
-0.477444 0.803594 0.701672 -0.607806 -0.871268 0.364696 0.973030 -0.093191 -0.999033
-0.185570 0.947253 0.449883 -0.821722 -0.679168 0.632213 0.855575 -0.393481 -0.965368
0.124114 1.000000 0.154917 -0.956773 -0.421886 0.839054 0.656008 -0.656008 -0.839054
0.421886 0.956773 -0.154917 -1.000000 -0.124114 0.965368 0.393481 -0.855575 -0.632213
0.679168 0.821722 -0.449883 -0.947253 0.185570 0.999033 0.093191 -0.973030 -0.364696
0.871268 0.607806 -0.701672 -0.803594 0.477444 0.936816 -0.216044 -0.997099 -0.062177
0.979749 0.335557 -0.886119 -0.582812 0.723496 0.784689 -0.504544 -0.925472 0.246309
0.994200 0.031104 -0.985521 -0.306094 0.900112 0.557253 -0.744621 -0.765025 0.531155
0.913234 -0.276335 -0.990340 ]
lambda = 1.782696 : [ 0.994200 0.216044 -0.947253 -0.421886 0.855575 0.607806 -0.723496
-0.765025 0.557253 0.886119 -0.364696 -0.965368 0.154917 0.999033 0.062177 -0.985521
-0.276335 0.925472 0.477444 -0.821722 -0.656008 0.679168 0.803594 -0.504544 -0.913234
0.306094 0.979749 -0.093191 -1.000000 -0.124114 0.973030 0.335557 -0.900112 -0.531155
0.784689 0.701672 -0.632213 -0.839054 0.449883 0.936816 -0.246309 -0.990340 0.031104
0.997099 0.185570 -0.956773 -0.393481 0.871268 0.582812 -0.744621 -0.744621 0.582812
0.871268 -0.393481 -0.956773 0.185570 0.997099 0.031104 -0.990340 -0.246309 0.936816
0.449883 -0.839054 -0.632213 0.701672 0.784689 -0.531155 -0.900112 0.335557 0.973030
-0.124114 -1.000000 -0.093191 0.979749 0.306094 -0.913234 -0.504544 0.803594 0.679168
-0.656008 -0.821722 0.477444 0.925472 -0.276335 -0.985521 0.062177 0.999033 0.154917
-0.965368 -0.364696 0.886119 0.557253 -0.765025 -0.723496 0.607806 0.855575 -0.421886
-0.947253 0.216044 0.994200 ]
lambda = 1.844632 : [ 0.997099 0.154917 -0.973030 -0.306094 0.925472 0.449883 -0.855575
-0.582812 0.765025 0.701672 -0.656008 -0.803594 0.531155 0.886119 -0.393481 -0.947253
0.246309 0.985521 -0.093191 -1.000000 -0.062177 0.990340 0.216044 -0.956773 -0.364696
0.900112 0.504544 -0.821722 -0.632213 0.723496 0.744621 -0.607806 -0.839054 0.477444
0.913234 -0.335557 -0.965368 0.185570 0.994200 -0.031104 -0.999033 -0.124114 0.979749

```

```

0.276335 -0.936816 -0.421886 0.871268 0.557253 -0.784689 -0.679168 0.679168 0.784689
-0.557253 -0.871268 0.421886 0.936816 -0.276335 -0.979749 0.124114 0.999033 0.031104
-0.994200 -0.185570 0.965368 0.335557 -0.913234 -0.477444 0.839054 0.607806 -0.744621
-0.723496 0.632213 0.821722 -0.504544 -0.900112 0.364696 0.956773 -0.216044 -0.990340
0.062177 1.000000 0.093191 -0.985521 -0.246309 0.947253 0.393481 -0.886119 -0.531155
0.803594 0.656008 -0.701672 -0.765025 0.582812 0.855575 -0.449883 -0.925472 0.306094
0.973030 -0.154917 -0.997099 ]
lambda = 1.906719 :[ -0.999033 -0.093191 0.990340 0.185570 -0.973030 -0.276335 0.947253
0.364696 -0.913234 -0.449883 0.871268 0.531155 -0.821722 -0.607806 0.765025 0.679168
-0.701672 -0.744621 0.632213 0.803594 -0.557253 -0.855575 0.477444 0.900112 -0.393481
-0.936816 0.306094 0.965368 -0.216044 -0.985521 0.124114 0.997099 -0.031104 -1.000000
-0.062177 0.994200 0.154917 -0.979749 -0.246309 0.956773 0.335557 -0.925472 -0.421886
0.886119 0.504544 -0.839054 -0.582812 0.784689 0.656008 -0.723496 -0.723496 0.656008
0.784689 -0.582812 -0.839054 0.504544 0.886119 -0.421886 -0.925472 0.335557 0.956773
-0.246309 -0.979749 0.154917 0.994200 -0.062177 -1.000000 -0.031104 0.997099 0.124114
-0.985521 -0.216044 0.965368 0.306094 -0.936816 -0.393481 0.900112 0.477444 -0.855575
-0.557253 0.803594 0.632213 -0.744621 -0.701672 0.679168 0.765025 -0.607806 -0.821722
0.531155 0.871268 -0.449883 -0.913234 0.364696 0.947253 -0.276335 -0.973030 0.185570
0.990340 -0.093191 -0.999033 ]
lambda = 1.968896 :[ -1.000000 -0.031104 0.999033 0.062177 -0.997099 -0.093191 0.994200
0.124114 -0.990340 -0.154917 0.985521 0.185570 -0.979749 -0.216044 0.973030 0.246309
-0.965368 -0.276335 0.956773 0.306094 -0.947253 -0.335557 0.936816 0.364696 -0.925472
-0.393481 0.913234 0.421886 -0.900112 -0.449883 0.886119 0.477444 -0.871268 -0.504544
0.855575 0.531155 -0.839054 -0.557253 0.821722 0.582812 -0.803594 -0.607806 0.784689
0.632213 -0.765025 -0.656008 0.744621 0.679168 -0.723496 -0.701672 0.701672 0.723496
-0.679168 -0.744621 0.656008 0.765025 -0.632213 -0.784689 0.607806 0.803594 -0.582812
-0.821722 0.557253 0.839054 -0.531155 -0.855575 0.504544 0.871268 -0.477444 -0.886119
0.449883 0.900112 -0.421886 -0.913234 0.393481 0.925472 -0.364696 -0.936816 0.335557
0.947253 -0.306094 -0.956773 0.276335 0.965368 -0.246309 -0.973030 0.216044 0.979749
-0.185570 -0.985521 0.154917 0.990340 -0.124114 -0.994200 0.093191 0.997099 -0.062177
-0.999033 0.031104 1.000000 ]
lambda = 2.031104 :[ -1.000000 0.031104 0.999033 -0.062177 -0.997099 0.093191 0.994200
-0.124114 -0.990340 0.154917 0.985521 -0.185570 -0.979749 0.216044 0.973030 -0.246309
-0.965368 0.276335 0.956773 -0.306094 -0.947253 0.335557 0.936816 -0.364696 -0.925472
0.393481 0.913234 -0.421886 -0.900112 0.449883 0.886119 -0.477444 -0.871268 0.504544
0.855575 -0.531155 -0.839054 0.557253 0.821722 -0.582812 -0.803594 0.607806 0.784689
-0.632213 -0.765025 0.656008 0.744621 -0.679168 -0.723496 0.701672 0.701672 -0.723496
-0.679168 0.744621 0.656008 -0.765025 -0.632213 0.784689 0.607806 -0.803594 -0.582812
0.821722 0.557253 -0.839054 -0.531155 0.855575 0.504544 -0.871268 -0.477444 0.886119
0.449883 -0.900112 -0.421886 0.913234 0.393481 -0.925472 -0.364696 0.936816 0.335557
-0.947253 -0.306094 0.956773 0.276335 -0.965368 -0.246309 0.973030 0.216044 -0.979749

```

```

-0.185570 0.985521 0.154917 -0.990340 -0.124114 0.994200 0.093191 -0.997099 -0.062177
0.999033 0.031104 -1.000000 ]
lambda = 2.093281 :[ -0.999033 0.093191 0.990340 -0.185570 -0.973030 0.276335 0.947253
-0.364696 -0.913234 0.449883 0.871268 -0.531155 -0.821722 0.607806 0.765025 -0.679168
-0.701672 0.744621 0.632213 -0.803594 -0.557253 0.855575 0.477444 -0.900112 -0.393481
0.936816 0.306094 -0.965368 -0.216044 0.985521 0.124114 -0.997099 -0.031104 1.000000
-0.062177 -0.994200 0.154917 0.979749 -0.246309 -0.956773 0.335557 0.925472 -0.421886
-0.886119 0.504544 0.839054 -0.582812 -0.784689 0.656008 0.723496 -0.723496 -0.656008
0.784689 0.582812 -0.839054 -0.504544 0.886119 0.421886 -0.925472 -0.335557 0.956773
0.246309 -0.979749 -0.154917 0.994200 0.062177 -1.000000 0.031104 0.997099 -0.124114
-0.985521 0.216044 0.965368 -0.306094 -0.936816 0.393481 0.900112 -0.477444 -0.855575
0.557253 0.803594 -0.632213 -0.744621 0.701672 0.679168 -0.765025 -0.607806 0.821722
0.531155 -0.871268 -0.449883 0.913234 0.364696 -0.947253 -0.276335 0.973030 0.185570
-0.990340 -0.093191 0.999033 ]
lambda = 2.155368 :[ -0.997099 0.154917 0.973030 -0.306094 -0.925472 0.449883 0.855575
-0.582812 -0.765025 0.701672 0.656008 -0.803594 -0.531155 0.886119 0.393481 -0.947253
-0.246309 0.985521 0.093191 -1.000000 0.062177 0.990340 -0.216044 -0.956773 0.364696
0.900112 -0.504544 -0.821722 0.632213 0.723496 -0.744621 -0.607806 0.839054 0.477444
-0.913234 -0.335557 0.965368 0.185570 -0.994200 -0.031104 0.999033 -0.124114 -0.979749
0.276335 0.936816 -0.421886 -0.871268 0.557253 0.784689 -0.679168 -0.679168 0.784689
0.557253 -0.871268 -0.421886 0.936816 0.276335 -0.979749 -0.124114 0.999033 -0.031104
-0.994200 0.185570 0.965368 -0.335557 -0.913234 0.477444 0.839054 -0.607806 -0.744621
0.723496 0.632213 -0.821722 -0.504544 0.900112 0.364696 -0.956773 -0.216044 0.990340
0.062177 -1.000000 0.093191 0.985521 -0.246309 -0.947253 0.393481 0.886119 -0.531155
-0.803594 0.656008 0.701672 -0.765025 -0.582812 0.855575 0.449883 -0.925472 -0.306094
0.973030 0.154917 -0.997099 ]
lambda = 2.217304 :[ 0.994200 -0.216044 -0.947253 0.421886 0.855575 -0.607806 -0.723496
0.765025 0.557253 -0.886119 -0.364696 0.965368 0.154917 -0.999033 0.062177 0.985521
-0.276335 -0.925472 0.477444 0.821722 -0.656008 -0.679168 0.803594 0.504544 -0.913234
-0.306094 0.979749 0.093191 -1.000000 0.124114 0.973030 -0.335557 -0.900112 0.531155
0.784689 -0.701672 -0.632213 0.839054 0.449883 -0.936816 -0.246309 0.990340 0.031104
-0.997099 0.185570 0.956773 -0.393481 -0.871268 0.582812 0.744621 -0.744621 -0.582812
0.871268 0.393481 -0.956773 -0.185570 0.997099 -0.031104 -0.990340 0.246309 0.936816
-0.449883 -0.839054 0.632213 0.701672 -0.784689 -0.531155 0.900112 0.335557 -0.973030
-0.124114 1.000000 -0.093191 -0.979749 0.306094 0.913234 -0.504544 -0.803594 0.679168
0.656008 -0.821722 -0.477444 0.925472 0.276335 -0.985521 -0.062177 0.999033 -0.154917
-0.965368 0.364696 0.886119 -0.557253 -0.765025 0.723496 0.607806 -0.855575 -0.421886
0.947253 0.216044 -0.994200 ]
lambda = 2.279031 :[ -0.990340 0.276335 0.913234 -0.531155 -0.765025 0.744621 0.557253
-0.900112 -0.306094 0.985521 0.031104 -0.994200 0.246309 0.925472 -0.504544 -0.784689
0.723496 0.582812 -0.886119 -0.335557 0.979749 0.062177 -0.997099 0.216044 0.936816

```

```

-0.477444 -0.803594 0.701672 0.607806 -0.871268 -0.364696 0.973030 0.093191 -0.999033
0.185570 0.947253 -0.449883 -0.821722 0.679168 0.632213 -0.855575 -0.393481 0.965368
0.124114 -1.000000 0.154917 0.956773 -0.421886 -0.839054 0.656008 0.656008 -0.839054
-0.421886 0.956773 0.154917 -1.000000 0.124114 0.965368 -0.393481 -0.855575 0.632213
0.679168 -0.821722 -0.449883 0.947253 0.185570 -0.999033 0.093191 0.973030 -0.364696
-0.871268 0.607806 0.701672 -0.803594 -0.477444 0.936816 0.216044 -0.997099 0.062177
0.979749 -0.335557 -0.886119 0.582812 0.723496 -0.784689 -0.504544 0.925472 0.246309
-0.994200 0.031104 0.985521 -0.306094 -0.900112 0.557253 0.744621 -0.765025 -0.531155
0.913234 0.276335 -0.990340 ]
lambda = 2.340487 :[ -0.985521 0.335557 0.871268 -0.632213 -0.656008 0.855575 0.364696
-0.979749 -0.031104 0.990340 -0.306094 -0.886119 0.607806 0.679168 -0.839054 -0.393481
0.973030 0.062177 -0.994200 0.276335 0.900112 -0.582812 -0.701672 0.821722 0.421886
-0.965368 -0.093191 0.997099 -0.246309 -0.913234 0.557253 0.723496 -0.803594 -0.449883
0.956773 0.124114 -0.999033 0.216044 0.925472 -0.531155 -0.744621 0.784689 0.477444
-0.947253 -0.154917 1.000000 -0.185570 -0.936816 0.504544 0.765025 -0.765025 -0.504544
0.936816 0.185570 -1.000000 0.154917 0.947253 -0.477444 -0.784689 0.744621 0.531155
-0.925472 -0.216044 0.999033 -0.124114 -0.956773 0.449883 0.803594 -0.723496 -0.557253
0.913234 0.246309 -0.997099 0.093191 0.965368 -0.421886 -0.821722 0.701672 0.582812
-0.900112 -0.276335 0.994200 -0.062177 -0.973030 0.393481 0.839054 -0.679168 -0.607806
0.886119 0.306094 -0.990340 0.031104 0.979749 -0.364696 -0.855575 0.656008 0.632213
-0.871268 -0.335557 0.985521 ]
lambda = 2.401614 :[ 0.979749 -0.393481 -0.821722 0.723496 0.531155 -0.936816 -0.154917
0.999033 -0.246309 -0.900112 0.607806 0.656008 -0.871268 -0.306094 0.994200 -0.093191
-0.956773 0.477444 0.765025 -0.784689 -0.449883 0.965368 0.062177 -0.990340 0.335557
0.855575 -0.679168 -0.582812 0.913234 0.216044 -1.000000 0.185570 0.925472 -0.557253
-0.701672 0.839054 0.364696 -0.985521 0.031104 0.973030 -0.421886 -0.803594 0.744621
0.504544 -0.947253 -0.124114 0.997099 -0.276335 -0.886119 0.632213 0.632213 -0.886119
-0.276335 0.997099 -0.124114 -0.947253 0.504544 0.744621 -0.803594 -0.421886 0.973030
0.031104 -0.985521 0.364696 0.839054 -0.701672 -0.557253 0.925472 0.185570 -1.000000
0.216044 0.913234 -0.582812 -0.679168 0.855575 0.335557 -0.990340 0.062177 0.965368
-0.449883 -0.784689 0.765025 0.477444 -0.956773 -0.093191 0.994200 -0.306094 -0.871268
0.656008 0.607806 -0.900112 -0.246309 0.999033 -0.154917 -0.936816 0.531155 0.723496
-0.821722 -0.393481 0.979749 ]
lambda = 2.462353 :[ 0.973030 -0.449883 -0.765025 0.803594 0.393481 -0.985521 0.062177
0.956773 -0.504544 -0.723496 0.839054 0.335557 -0.994200 0.124114 0.936816 -0.557253
-0.679168 0.871268 0.276335 -0.999033 0.185570 0.913234 -0.607806 -0.632213 0.900112
0.216044 -1.000000 0.246309 0.886119 -0.656008 -0.582812 0.925472 0.154917 -0.997099
0.306094 0.855575 -0.701672 -0.531155 0.947253 0.093191 -0.990340 0.364696 0.821722
-0.744621 -0.477444 0.965368 0.031104 -0.979749 0.421886 0.784689 -0.784689 -0.421886
0.979749 -0.031104 -0.965368 0.477444 0.744621 -0.821722 -0.364696 0.990340 -0.093191
-0.947253 0.531155 0.701672 -0.855575 -0.306094 0.997099 -0.154917 -0.925472 0.582812

```

```

0.656008 -0.886119 -0.246309 1.000000 -0.216044 -0.900112 0.632213 0.607806 -0.913234
-0.185570 0.999033 -0.276335 -0.871268 0.679168 0.557253 -0.936816 -0.124114 0.994200
-0.335557 -0.839054 0.723496 0.504544 -0.956773 -0.062177 0.985521 -0.393481 -0.803594
0.765025 0.449883 -0.973030 ]
lambda = 2.522644 : [ 0.965368 -0.504544 -0.701672 0.871268 0.246309 -1.000000 0.276335
0.855575 -0.723496 -0.477444 0.973030 -0.031104 -0.956773 0.531155 0.679168 -0.886119
-0.216044 0.999033 -0.306094 -0.839054 0.744621 0.449883 -0.979749 0.062177 0.947253
-0.557253 -0.656008 0.900112 0.185570 -0.997099 0.335557 0.821722 -0.765025 -0.421886
0.985521 -0.093191 -0.936816 0.582812 0.632213 -0.913234 -0.154917 0.994200 -0.364696
-0.803594 0.784689 0.393481 -0.990340 0.124114 0.925472 -0.607806 -0.607806 0.925472
0.124114 -0.990340 0.393481 0.784689 -0.803594 -0.364696 0.994200 -0.154917 -0.913234
0.632213 0.582812 -0.936816 -0.093191 0.985521 -0.421886 -0.765025 0.821722 0.335557
-0.997099 0.185570 0.900112 -0.656008 -0.557253 0.947253 0.062177 -0.979749 0.449883
0.744621 -0.839054 -0.306094 0.999033 -0.216044 -0.886119 0.679168 0.531155 -0.956773
-0.031104 0.973030 -0.477444 -0.723496 0.855575 0.276335 -1.000000 0.246309 0.871268
-0.701672 -0.504544 0.965368 ]
lambda = 2.582429 : [ 0.956773 -0.557253 -0.632213 0.925472 0.093191 -0.979749 0.477444
0.701672 -0.886119 -0.185570 0.994200 -0.393481 -0.765025 0.839054 0.276335 -1.000000
0.306094 0.821722 -0.784689 -0.364696 0.997099 -0.216044 -0.871268 0.723496 0.449883
-0.985521 0.124114 0.913234 -0.656008 -0.531155 0.965368 -0.031104 -0.947253 0.582812
0.607806 -0.936816 -0.062177 0.973030 -0.504544 -0.679168 0.900112 0.154917 -0.990340
0.421886 0.744621 -0.855575 -0.246309 0.999033 -0.335557 -0.803594 0.803594 0.335557
-0.999033 0.246309 0.855575 -0.744621 -0.421886 0.990340 -0.154917 -0.900112 0.679168
0.504544 -0.973030 0.062177 0.936816 -0.607806 -0.582812 0.947253 0.031104 -0.965368
0.531155 0.656008 -0.913234 -0.124114 0.985521 -0.449883 -0.723496 0.871268 0.216044
-0.997099 0.364696 0.784689 -0.821722 -0.306094 1.000000 -0.276335 -0.839054 0.765025
0.393481 -0.994200 0.185570 0.886119 -0.701672 -0.477444 0.979749 -0.093191 -0.925472
0.632213 0.557253 -0.956773 ]
lambda = 2.641652 : [ -0.947253 0.607806 0.557253 -0.965368 0.062177 0.925472 -0.656008
-0.504544 0.979749 -0.124114 -0.900112 0.701672 0.449883 -0.990340 0.185570 0.871268
-0.744621 -0.393481 0.997099 -0.246309 -0.839054 0.784689 0.335557 -1.000000 0.306094
0.803594 -0.821722 -0.276335 0.999033 -0.364696 -0.765025 0.855575 0.216044 -0.994200
0.421886 0.723496 -0.886119 -0.154917 0.985521 -0.477444 -0.679168 0.913234 0.093191
-0.973030 0.531155 0.632213 -0.936816 -0.031104 0.956773 -0.582812 -0.582812 0.956773
-0.031104 -0.936816 0.632213 0.531155 -0.973030 0.093191 0.913234 -0.679168 -0.477444
0.985521 -0.154917 -0.886119 0.723496 0.421886 -0.994200 0.216044 0.855575 -0.765025
-0.364696 0.999033 -0.276335 -0.821722 0.803594 0.306094 -1.000000 0.335557 0.784689
-0.839054 -0.246309 0.997099 -0.393481 -0.744621 0.871268 0.185570 -0.990340 0.449883
0.701672 -0.900112 -0.124114 0.979749 -0.504544 -0.656008 0.925472 0.062177 -0.965368
0.557253 0.607806 -0.947253 ]
lambda = 2.700253 : [ 0.936816 -0.656008 -0.477444 0.990340 -0.216044 -0.839054 0.803594

```

```

0.276335 -0.997099 0.421886 0.701672 -0.913234 -0.062177 0.956773 -0.607806 -0.531155
0.979749 -0.154917 -0.871268 0.765025 0.335557 -1.000000 0.364696 0.744621 -0.886119
-0.124114 0.973030 -0.557253 -0.582812 0.965368 -0.093191 -0.900112 0.723496 0.393481
-0.999033 0.306094 0.784689 -0.855575 -0.185570 0.985521 -0.504544 -0.632213 0.947253
-0.031104 -0.925472 0.679168 0.449883 -0.994200 0.246309 0.821722 -0.821722 -0.246309
0.994200 -0.449883 -0.679168 0.925472 0.031104 -0.947253 0.632213 0.504544 -0.985521
0.185570 0.855575 -0.784689 -0.306094 0.999033 -0.393481 -0.723496 0.900112 0.093191
-0.965368 0.582812 0.557253 -0.973030 0.124114 0.886119 -0.744621 -0.364696 1.000000
-0.335557 -0.765025 0.871268 0.154917 -0.979749 0.531155 0.607806 -0.956773 0.062177
0.913234 -0.701672 -0.421886 0.997099 -0.276335 -0.803594 0.839054 0.216044 -0.990340
0.477444 0.656008 -0.936816 ]
lambda = 2.758177 :[ -0.925472 0.701672 0.393481 -1.000000 0.364696 0.723496 -0.913234
-0.031104 0.936816 -0.679168 -0.421886 0.999033 -0.335557 -0.744621 0.900112 0.062177
-0.947253 0.656008 0.449883 -0.997099 0.306094 0.765025 -0.886119 -0.093191 0.956773
-0.632213 -0.477444 0.994200 -0.276335 -0.784689 0.871268 0.124114 -0.965368 0.607806
0.504544 -0.990340 0.246309 0.803594 -0.855575 -0.154917 0.973030 -0.582812 -0.531155
0.985521 -0.216044 -0.821722 0.839054 0.185570 -0.979749 0.557253 0.557253 -0.979749
0.185570 0.839054 -0.821722 -0.216044 0.985521 -0.531155 -0.582812 0.973030 -0.154917
-0.855575 0.803594 0.246309 -0.990340 0.504544 0.607806 -0.965368 0.124114 0.871268
-0.784689 -0.276335 0.994200 -0.477444 -0.632213 0.956773 -0.093191 -0.886119 0.765025
0.306094 -0.997099 0.449883 0.656008 -0.947253 0.062177 0.900112 -0.744621 -0.335557
0.999033 -0.421886 -0.679168 0.936816 -0.031104 -0.913234 0.723496 0.364696 -1.000000
0.393481 0.701672 -0.925472 ]
lambda = 2.815367 :[ 0.913234 -0.744621 -0.306094 0.994200 -0.504544 -0.582812 0.979749
-0.216044 -0.803594 0.871268 0.093191 -0.947253 0.679168 0.393481 -1.000000 0.421886
0.656008 -0.956773 0.124114 0.855575 -0.821722 -0.185570 0.973030 -0.607806 -0.477444
0.997099 -0.335557 -0.723496 0.925472 -0.031104 -0.900112 0.765025 0.276335 -0.990340
0.531155 0.557253 -0.985521 0.246309 0.784689 -0.886119 -0.062177 0.936816 -0.701672
-0.364696 0.999033 -0.449883 -0.632213 0.965368 -0.154917 -0.839054 0.839054 0.154917
-0.965368 0.632213 0.449883 -0.999033 0.364696 0.701672 -0.936816 0.062177 0.886119
-0.784689 -0.246309 0.985521 -0.557253 -0.531155 0.990340 -0.276335 -0.765025 0.900112
0.031104 -0.925472 0.723496 0.335557 -0.997099 0.477444 0.607806 -0.973030 0.185570
0.821722 -0.855575 -0.124114 0.956773 -0.656008 -0.421886 1.000000 -0.393481 -0.679168
0.947253 -0.093191 -0.871268 0.803594 0.216044 -0.979749 0.582812 0.504544 -0.994200
0.306094 0.744621 -0.913234 ]
lambda = 2.871769 :[ -0.900112 0.784689 0.216044 -0.973030 0.632213 0.421886 -1.000000
0.449883 0.607806 -0.979749 0.246309 0.765025 -0.913234 0.031104 0.886119 -0.803594
-0.185570 0.965368 -0.656008 -0.393481 0.999033 -0.477444 -0.582812 0.985521 -0.276335
-0.744621 0.925472 -0.062177 -0.871268 0.821722 0.154917 -0.956773 0.679168 0.364696
-0.997099 0.504544 0.557253 -0.990340 0.306094 0.723496 -0.936816 0.093191 0.855575
-0.839054 -0.124114 0.947253 -0.701672 -0.335557 0.994200 -0.531155 -0.531155 0.994200

```

```

-0.335557 -0.701672 0.947253 -0.124114 -0.839054 0.855575 0.093191 -0.936816 0.723496
0.306094 -0.990340 0.557253 0.504544 -0.997099 0.364696 0.679168 -0.956773 0.154917
0.821722 -0.871268 -0.062177 0.925472 -0.744621 -0.276335 0.985521 -0.582812 -0.477444
0.999033 -0.393481 -0.656008 0.965368 -0.185570 -0.803594 0.886119 0.031104 -0.913234
0.765025 0.246309 -0.979749 0.607806 0.449883 -1.000000 0.421886 0.632213 -0.973030
0.216044 0.784689 -0.900112 ]
lambda = 2.927327 :[ -0.886119 0.821722 0.124114 -0.936816 0.744621 0.246309 -0.973030
0.656008 0.364696 -0.994200 0.557253 0.477444 -1.000000 0.449883 0.582812 -0.990340
0.335557 0.679168 -0.965368 0.216044 0.765025 -0.925472 0.093191 0.839054 -0.871268
-0.031104 0.900112 -0.803594 -0.154917 0.947253 -0.723496 -0.276335 0.979749 -0.632213
-0.393481 0.997099 -0.531155 -0.504544 0.999033 -0.421886 -0.607806 0.985521 -0.306094
-0.701672 0.956773 -0.185570 -0.784689 0.913234 -0.062177 -0.855575 0.855575 0.062177
-0.913234 0.784689 0.185570 -0.956773 0.701672 0.306094 -0.985521 0.607806 0.421886
-0.999033 0.504544 0.531155 -0.997099 0.393481 0.632213 -0.979749 0.276335 0.723496
-0.947253 0.154917 0.803594 -0.900112 0.031104 0.871268 -0.839054 -0.093191 0.925472
-0.765025 -0.216044 0.965368 -0.679168 -0.335557 0.990340 -0.582812 -0.449883 1.000000
-0.477444 -0.557253 0.994200 -0.364696 -0.656008 0.973030 -0.246309 -0.744621 0.936816
-0.124114 -0.821722 0.886119 ]
lambda = 2.981988 :[ -0.871268 0.855575 0.031104 -0.886119 0.839054 0.062177 -0.900112
0.821722 0.093191 -0.913234 0.803594 0.124114 -0.925472 0.784689 0.154917 -0.936816
0.765025 0.185570 -0.947253 0.744621 0.216044 -0.956773 0.723496 0.246309 -0.965368
0.701672 0.276335 -0.973030 0.679168 0.306094 -0.979749 0.656008 0.335557 -0.985521
0.632213 0.364696 -0.990340 0.607806 0.393481 -0.994200 0.582812 0.421886 -0.997099
0.557253 0.449883 -0.999033 0.531155 0.477444 -1.000000 0.504544 0.504544 -1.000000
0.477444 0.531155 -0.999033 0.449883 0.557253 -0.997099 0.421886 0.582812 -0.994200
0.393481 0.607806 -0.990340 0.364696 0.632213 -0.985521 0.335557 0.656008 -0.979749
0.306094 0.679168 -0.973030 0.276335 0.701672 -0.965368 0.246309 0.723496 -0.956773
0.216044 0.744621 -0.947253 0.185570 0.765025 -0.936816 0.154917 0.784689 -0.925472
0.124114 0.803594 -0.913234 0.093191 0.821722 -0.900112 0.062177 0.839054 -0.886119
0.031104 0.855575 -0.871268 ]
lambda = 3.035699 :[ 0.855575 -0.886119 0.062177 0.821722 -0.913234 0.124114 0.784689
-0.936816 0.185570 0.744621 -0.956773 0.246309 0.701672 -0.973030 0.306094 0.656008
-0.985521 0.364696 0.607806 -0.994200 0.421886 0.557253 -0.999033 0.477444 0.504544
-1.000000 0.531155 0.449883 -0.997099 0.582812 0.393481 -0.990340 0.632213 0.335557
-0.979749 0.679168 0.276335 -0.965368 0.723496 0.216044 -0.947253 0.765025 0.154917
-0.925472 0.803594 0.093191 -0.900112 0.839054 0.031104 -0.871268 0.871268 -0.031104
-0.839054 0.900112 -0.093191 -0.803594 0.925472 -0.154917 -0.765025 0.947253 -0.216044
-0.723496 0.965368 -0.276335 -0.679168 0.979749 -0.335557 -0.632213 0.990340 -0.393481
-0.582812 0.997099 -0.449883 -0.531155 1.000000 -0.504544 -0.477444 0.999033 -0.557253
-0.421886 0.994200 -0.607806 -0.364696 0.985521 -0.656008 -0.306094 0.973030 -0.701672
-0.246309 0.956773 -0.744621 -0.185570 0.936816 -0.784689 -0.124114 0.913234 -0.821722

```

```

-0.062177 0.886119 -0.855575 ]
lambda = 3.088408 :[ -0.839054 0.913234 -0.154917 -0.744621 0.965368 -0.306094 -0.632213
0.994200 -0.449883 -0.504544 0.999033 -0.582812 -0.364696 0.979749 -0.701672 -0.216044
0.936816 -0.803594 -0.062177 0.871268 -0.886119 0.093191 0.784689 -0.947253 0.246309
0.679168 -0.985521 0.393481 0.557253 -1.000000 0.531155 0.421886 -0.990340 0.656008
0.276335 -0.956773 0.765025 0.124114 -0.900112 0.855575 -0.031104 -0.821722 0.925472
-0.185570 -0.723496 0.973030 -0.335557 -0.607806 0.997099 -0.477444 -0.477444 0.997099
-0.607806 -0.335557 0.973030 -0.723496 -0.185570 0.925472 -0.821722 -0.031104 0.855575
-0.900112 0.124114 0.765025 -0.956773 0.276335 0.656008 -0.990340 0.421886 0.531155
-1.000000 0.557253 0.393481 -0.985521 0.679168 0.246309 -0.947253 0.784689 0.093191
-0.886119 0.871268 -0.062177 -0.803594 0.936816 -0.216044 -0.701672 0.979749 -0.364696
-0.582812 0.999033 -0.504544 -0.449883 0.994200 -0.632213 -0.306094 0.965368 -0.744621
-0.154917 0.913234 -0.839054 ]
lambda = 3.140065 :[ 0.821722 -0.936816 0.246309 0.656008 -0.994200 0.477444 0.449883
-0.990340 0.679168 0.216044 -0.925472 0.839054 -0.031104 -0.803594 0.947253 -0.276335
-0.632213 0.997099 -0.504544 -0.421886 0.985521 -0.701672 -0.185570 0.913234 -0.855575
0.062177 0.784689 -0.956773 0.306094 0.607806 -0.999033 0.531155 0.393481 -0.979749
0.723496 0.154917 -0.900112 0.871268 -0.093191 -0.765025 0.965368 -0.335557 -0.582812
1.000000 -0.557253 -0.364696 0.973030 -0.744621 -0.124114 0.886119 -0.886119 0.124114
0.744621 -0.973030 0.364696 0.557253 -1.000000 0.582812 0.335557 -0.965368 0.765025
0.093191 -0.871268 0.900112 -0.154917 -0.723496 0.979749 -0.393481 -0.531155 0.999033
-0.607806 -0.306094 0.956773 -0.784689 -0.062177 0.855575 -0.913234 0.185570 0.701672
-0.985521 0.421886 0.504544 -0.997099 0.632213 0.276335 -0.947253 0.803594 0.031104
-0.839054 0.925472 -0.216044 -0.679168 0.990340 -0.449883 -0.477444 0.994200 -0.656008
-0.246309 0.936816 -0.821722 ]
lambda = 3.190618 :[ -0.803594 0.956773 -0.335557 -0.557253 0.999033 -0.632213 -0.246309
0.925472 -0.855575 0.093191 0.744621 -0.979749 0.421886 0.477444 -0.990340 0.701672
0.154917 -0.886119 0.900112 -0.185570 -0.679168 0.994200 -0.504544 -0.393481 0.973030
-0.765025 -0.062177 0.839054 -0.936816 0.276335 0.607806 -1.000000 0.582812 0.306094
-0.947253 0.821722 -0.031104 -0.784689 0.965368 -0.364696 -0.531155 0.997099 -0.656008
-0.216044 0.913234 -0.871268 0.124114 0.723496 -0.985521 0.449883 0.449883 -0.985521
0.723496 0.124114 -0.871268 0.913234 -0.216044 -0.656008 0.997099 -0.531155 -0.364696
0.965368 -0.784689 -0.031104 0.821722 -0.947253 0.306094 0.582812 -1.000000 0.607806
0.276335 -0.936816 0.839054 -0.062177 -0.765025 0.973030 -0.393481 -0.504544 0.994200
-0.679168 -0.185570 0.900112 -0.886119 0.154917 0.701672 -0.990340 0.477444 0.421886
-0.979749 0.744621 0.093191 -0.855575 0.925472 -0.246309 -0.632213 0.999033 -0.557253
-0.335557 0.956773 -0.803594 ]
lambda = 3.240019 :[ -0.784689 0.973030 -0.421886 -0.449883 0.979749 -0.765025 -0.031104
0.803594 -0.965368 0.393481 0.477444 -0.985521 0.744621 0.062177 -0.821722 0.956773
-0.364696 -0.504544 0.990340 -0.723496 -0.093191 0.839054 -0.947253 0.335557 0.531155
-0.994200 0.701672 0.124114 -0.855575 0.936816 -0.306094 -0.557253 0.997099 -0.679168

```



```

-0.154917 0.871268 -0.925472 0.276335 0.582812 -0.999033 0.656008 0.185570 -0.886119
0.913234 -0.246309 -0.607806 1.000000 -0.632213 -0.216044 0.900112 -0.900112 0.216044
0.632213 -1.000000 0.607806 0.246309 -0.913234 0.886119 -0.185570 -0.656008 0.999033
-0.582812 -0.276335 0.925472 -0.871268 0.154917 0.679168 -0.997099 0.557253 0.306094
-0.936816 0.855575 -0.124114 -0.701672 0.994200 -0.531155 -0.335557 0.947253 -0.839054
0.093191 0.723496 -0.990340 0.504544 0.364696 -0.956773 0.821722 -0.062177 -0.744621
0.985521 -0.477444 -0.393481 0.965368 -0.803594 0.031104 0.765025 -0.979749 0.449883
0.421886 -0.973030 0.784689 ]
lambda = 3.288221 :[ -0.765025 0.985521 -0.504544 -0.335557 0.936816 -0.871268 0.185570
0.632213 -1.000000 0.656008 0.154917 -0.855575 0.947253 -0.364696 -0.477444 0.979749
-0.784689 0.031104 0.744621 -0.990340 0.531155 0.306094 -0.925472 0.886119 -0.216044
-0.607806 0.999033 -0.679168 -0.124114 0.839054 -0.956773 0.393481 0.449883 -0.973030
0.803594 -0.062177 -0.723496 0.994200 -0.557253 -0.276335 0.913234 -0.900112 0.246309
0.582812 -0.997099 0.701672 0.093191 -0.821722 0.965368 -0.421886 -0.421886 0.965368
-0.821722 0.093191 0.701672 -0.997099 0.582812 0.246309 -0.900112 0.913234 -0.276335
-0.557253 0.994200 -0.723496 -0.062177 0.803594 -0.973030 0.449883 0.393481 -0.956773
0.839054 -0.124114 -0.679168 0.999033 -0.607806 -0.216044 0.886119 -0.925472 0.306094
0.531155 -0.990340 0.744621 0.031104 -0.784689 0.979749 -0.477444 -0.364696 0.947253
-0.855575 0.154917 0.656008 -1.000000 0.632213 0.185570 -0.871268 0.936816 -0.335557
-0.504544 0.985521 -0.765025 ]
lambda = 3.335176 :[ -0.744621 0.994200 -0.582812 -0.216044 0.871268 -0.947253 0.393481
0.421886 -0.956773 0.855575 -0.185570 -0.607806 0.997099 -0.723496 -0.031104 0.765025
-0.990340 0.557253 0.246309 -0.886119 0.936816 -0.364696 -0.449883 0.965368 -0.839054
0.154917 0.632213 -0.999033 0.701672 0.062177 -0.784689 0.985521 -0.531155 -0.276335
0.900112 -0.925472 0.335557 0.477444 -0.973030 0.821722 -0.124114 -0.656008 1.000000
-0.679168 -0.093191 0.803594 -0.979749 0.504544 0.306094 -0.913234 0.913234 -0.306094
-0.504544 0.979749 -0.803594 0.093191 0.679168 -1.000000 0.656008 0.124114 -0.821722
0.973030 -0.477444 -0.335557 0.925472 -0.900112 0.276335 0.531155 -0.985521 0.784689
-0.062177 -0.701672 0.999033 -0.632213 -0.154917 0.839054 -0.965368 0.449883 0.364696
-0.936816 0.886119 -0.246309 -0.557253 0.990340 -0.765025 0.031104 0.723496 -0.997099
0.607806 0.185570 -0.855575 0.956773 -0.421886 -0.393481 0.947253 -0.871268 0.216044
0.582812 -0.994200 0.744621 ]
lambda = 3.380840 :[ -0.723496 0.999033 -0.656008 -0.093191 0.784689 -0.990340 0.582812
0.185570 -0.839054 0.973030 -0.504544 -0.276335 0.886119 -0.947253 0.421886 0.364696
-0.925472 0.913234 -0.335557 -0.449883 0.956773 -0.871268 0.246309 0.531155 -0.979749
0.821722 -0.154917 -0.607806 0.994200 -0.765025 0.062177 0.679168 -1.000000 0.701672
0.031104 -0.744621 0.997099 -0.632213 -0.124114 0.803594 -0.985521 0.557253 0.216044
-0.855575 0.965368 -0.477444 -0.306094 0.900112 -0.936816 0.393481 0.393481 -0.936816
0.900112 -0.306094 -0.477444 0.965368 -0.855575 0.216044 0.557253 -0.985521 0.803594
-0.124114 -0.632213 0.997099 -0.744621 0.031104 0.701672 -1.000000 0.679168 0.062177
-0.765025 0.994200 -0.607806 -0.154917 0.821722 -0.979749 0.531155 0.246309 -0.871268

```

```

0.956773 -0.449883 -0.335557 0.913234 -0.925472 0.364696 0.421886 -0.947253 0.886119
-0.276335 -0.504544 0.973030 -0.839054 0.185570 0.582812 -0.990340 0.784689 -0.093191
-0.656008 0.999033 -0.723496 ]
lambda = 3.425168 : [ 0.701672 -1.000000 0.723496 -0.031104 -0.679168 0.999033 -0.744621
0.062177 0.656008 -0.997099 0.765025 -0.093191 -0.632213 0.994200 -0.784689 0.124114
0.607806 -0.990340 0.803594 -0.154917 -0.582812 0.985521 -0.821722 0.185570 0.557253
-0.979749 0.839054 -0.216044 -0.531155 0.973030 -0.855575 0.246309 0.504544 -0.965368
0.871268 -0.276335 -0.477444 0.956773 -0.886119 0.306094 0.449883 -0.947253 0.900112
-0.335557 -0.421886 0.936816 -0.913234 0.364696 0.393481 -0.925472 0.925472 -0.393481
-0.364696 0.913234 -0.936816 0.421886 0.335557 -0.900112 0.947253 -0.449883 -0.306094
0.886119 -0.956773 0.477444 0.276335 -0.871268 0.965368 -0.504544 -0.246309 0.855575
-0.973030 0.531155 0.216044 -0.839054 0.979749 -0.557253 -0.185570 0.821722 -0.985521
0.582812 0.154917 -0.803594 0.990340 -0.607806 -0.124114 0.784689 -0.994200 0.632213
0.093191 -0.765025 0.997099 -0.656008 -0.062177 0.744621 -0.999033 0.679168 0.031104
-0.723496 1.000000 -0.701672 ]
lambda = 3.468117 : [ -0.679168 0.997099 -0.784689 0.154917 0.557253 -0.973030 0.871268
-0.306094 -0.421886 0.925472 -0.936816 0.449883 0.276335 -0.855575 0.979749 -0.582812
-0.124114 0.765025 -0.999033 0.701672 -0.031104 -0.656008 0.994200 -0.803594 0.185570
0.531155 -0.965368 0.886119 -0.335557 -0.393481 0.913234 -0.947253 0.477444 0.246309
-0.839054 0.985521 -0.607806 -0.093191 0.744621 -1.000000 0.723496 -0.062177 -0.632213
0.990340 -0.821722 0.216044 0.504544 -0.956773 0.900112 -0.364696 -0.364696 0.900112
-0.956773 0.504544 0.216044 -0.821722 0.990340 -0.632213 -0.062177 0.723496 -1.000000
0.744621 -0.093191 -0.607806 0.985521 -0.839054 0.246309 0.477444 -0.947253 0.913234
-0.393481 -0.335557 0.886119 -0.965368 0.531155 0.185570 -0.803594 0.994200 -0.656008
-0.031104 0.701672 -0.999033 0.765025 -0.124114 -0.582812 0.979749 -0.855575 0.276335
0.449883 -0.936816 0.925472 -0.421886 -0.306094 0.871268 -0.973030 0.557253 0.154917
-0.784689 0.997099 -0.679168 ]
lambda = 3.509646 : [ -0.656008 0.990340 -0.839054 0.276335 0.421886 -0.913234 0.956773
-0.531155 -0.154917 0.765025 -1.000000 0.744621 -0.124114 -0.557253 0.965368 -0.900112
0.393481 0.306094 -0.855575 0.985521 -0.632213 -0.031104 0.679168 -0.994200 0.821722
-0.246309 -0.449883 0.925472 -0.947253 0.504544 0.185570 -0.784689 0.999033 -0.723496
0.093191 0.582812 -0.973030 0.886119 -0.364696 -0.335557 0.871268 -0.979749 0.607806
0.062177 -0.701672 0.997099 -0.803594 0.216044 0.477444 -0.936816 0.936816 -0.477444
-0.216044 0.803594 -0.997099 0.701672 -0.062177 -0.607806 0.979749 -0.871268 0.335557
0.364696 -0.886119 0.973030 -0.582812 -0.093191 0.723496 -0.999033 0.784689 -0.185570
-0.504544 0.947253 -0.925472 0.449883 0.246309 -0.821722 0.994200 -0.679168 0.031104
0.632213 -0.985521 0.855575 -0.306094 -0.393481 0.900112 -0.965368 0.557253 0.124114
-0.744621 1.000000 -0.765025 0.154917 0.531155 -0.956773 0.913234 -0.421886 -0.276335
0.839054 -0.990340 0.656008 ]
lambda = 3.549714 : [ -0.632213 0.979749 -0.886119 0.393481 0.276335 -0.821722 0.997099
-0.723496 0.124114 0.531155 -0.947253 0.936816 -0.504544 -0.154917 0.744621 -0.999033

```

```

0.803594 -0.246309 -0.421886 0.900112 -0.973030 0.607806 0.031104 -0.656008 0.985521
-0.871268 0.364696 0.306094 -0.839054 0.994200 -0.701672 0.093191 0.557253 -0.956773
0.925472 -0.477444 -0.185570 0.765025 -1.000000 0.784689 -0.216044 -0.449883 0.913234
-0.965368 0.582812 0.062177 -0.679168 0.990340 -0.855575 0.335557 0.335557 -0.855575
0.990340 -0.679168 0.062177 0.582812 -0.965368 0.913234 -0.449883 -0.216044 0.784689
-1.000000 0.765025 -0.185570 -0.477444 0.925472 -0.956773 0.557253 0.093191 -0.701672
0.994200 -0.839054 0.306094 0.364696 -0.871268 0.985521 -0.656008 0.031104 0.607806
-0.973030 0.900112 -0.421886 -0.246309 0.803594 -0.999033 0.744621 -0.154917 -0.504544
0.936816 -0.947253 0.531155 0.124114 -0.723496 0.997099 -0.821722 0.276335 0.393481
-0.886119 0.979749 -0.632213 ]
lambda = 3.588283 :[ 0.607806 -0.965368 0.925472 -0.504544 -0.124114 0.701672 -0.990340
0.871268 -0.393481 -0.246309 0.784689 -1.000000 0.803594 -0.276335 -0.364696 0.855575
-0.994200 0.723496 -0.154917 -0.477444 0.913234 -0.973030 0.632213 -0.031104 -0.582812
0.956773 -0.936816 0.531155 0.093191 -0.679168 0.985521 -0.886119 0.421886 0.216044
-0.765025 0.999033 -0.821722 0.306094 0.335557 -0.839054 0.997099 -0.744621 0.185570
0.449883 -0.900112 0.979749 -0.656008 0.062177 0.557253 -0.947253 0.947253 -0.557253
-0.062177 0.656008 -0.979749 0.900112 -0.449883 -0.185570 0.744621 -0.997099 0.839054
-0.335557 -0.306094 0.821722 -0.999033 0.765025 -0.216044 -0.421886 0.886119 -0.985521
0.679168 -0.093191 -0.531155 0.936816 -0.956773 0.582812 0.031104 -0.632213 0.973030
-0.913234 0.477444 0.154917 -0.723496 0.994200 -0.855575 0.364696 0.276335 -0.803594
1.000000 -0.784689 0.246309 0.393481 -0.871268 0.990340 -0.701672 0.124114 0.504544
-0.925472 0.965368 -0.607806 ]
lambda = 3.625316 :[ -0.582812 0.947253 -0.956773 0.607806 -0.031104 -0.557253 0.936816
-0.965368 0.632213 -0.062177 -0.531155 0.925472 -0.973030 0.656008 -0.093191 -0.504544
0.913234 -0.979749 0.679168 -0.124114 -0.477444 0.900112 -0.985521 0.701672 -0.154917
-0.449883 0.886119 -0.990340 0.723496 -0.185570 -0.421886 0.871268 -0.994200 0.744621
-0.216044 -0.393481 0.855575 -0.997099 0.765025 -0.246309 -0.364696 0.839054 -0.999033
0.784689 -0.276335 -0.335557 0.821722 -1.000000 0.803594 -0.306094 -0.306094 0.803594
-1.000000 0.821722 -0.335557 -0.276335 0.784689 -0.999033 0.839054 -0.364696 -0.246309
0.765025 -0.997099 0.855575 -0.393481 -0.216044 0.744621 -0.994200 0.871268 -0.421886
-0.185570 0.723496 -0.990340 0.886119 -0.449883 -0.154917 0.701672 -0.985521 0.900112
-0.477444 -0.124114 0.679168 -0.979749 0.913234 -0.504544 -0.093191 0.656008 -0.973030
0.925472 -0.531155 -0.062177 0.632213 -0.965368 0.936816 -0.557253 -0.031104 0.607806
-0.956773 0.947253 -0.582812 ]
lambda = 3.660776 :[ -0.557253 0.925472 -0.979749 0.701672 -0.185570 -0.393481 0.839054
-1.000000 0.821722 -0.364696 -0.216044 0.723496 -0.985521 0.913234 -0.531155 -0.031104
0.582812 -0.936816 0.973030 -0.679168 0.154917 0.421886 -0.855575 0.999033 -0.803594
0.335557 0.246309 -0.744621 0.990340 -0.900112 0.504544 0.062177 -0.607806 0.947253
-0.965368 0.656008 -0.124114 -0.449883 0.871268 -0.997099 0.784689 -0.306094 -0.276335
0.765025 -0.994200 0.886119 -0.477444 -0.093191 0.632213 -0.956773 0.956773 -0.632213
0.093191 0.477444 -0.886119 0.994200 -0.765025 0.276335 0.306094 -0.784689 0.997099

```

```

-0.871268 0.449883 0.124114 -0.656008 0.965368 -0.947253 0.607806 -0.062177 -0.504544
0.900112 -0.990340 0.744621 -0.246309 -0.335557 0.803594 -0.999033 0.855575 -0.421886
-0.154917 0.679168 -0.973030 0.936816 -0.582812 0.031104 0.531155 -0.913234 0.985521
-0.723496 0.216044 0.364696 -0.821722 1.000000 -0.839054 0.393481 0.185570 -0.701672
0.979749 -0.925472 0.557253 ]
lambda = 3.694629 :[ 0.531155 -0.900112 0.994200 -0.784689 0.335557 0.216044 -0.701672
0.973030 -0.947253 0.632213 -0.124114 -0.421886 0.839054 -1.000000 0.855575 -0.449883
-0.093191 0.607806 -0.936816 0.979749 -0.723496 0.246309 0.306094 -0.765025 0.990340
-0.913234 0.557253 -0.031104 -0.504544 0.886119 -0.997099 0.803594 -0.364696 -0.185570
0.679168 -0.965368 0.956773 -0.656008 0.154917 0.393481 -0.821722 0.999033 -0.871268
0.477444 0.062177 -0.582812 0.925472 -0.985521 0.744621 -0.276335 -0.276335 0.744621
-0.985521 0.925472 -0.582812 0.062177 0.477444 -0.871268 0.999033 -0.821722 0.393481
0.154917 -0.656008 0.956773 -0.965368 0.679168 -0.185570 -0.364696 0.803594 -0.997099
0.886119 -0.504544 -0.031104 0.557253 -0.913234 0.990340 -0.765025 0.306094 0.246309
-0.723496 0.979749 -0.936816 0.607806 -0.093191 -0.449883 0.855575 -1.000000 0.839054
-0.421886 -0.124114 0.632213 -0.947253 0.973030 -0.701672 0.216044 0.335557 -0.784689
0.994200 -0.900112 0.531155 ]
lambda = 3.726843 :[ -0.504544 0.871268 -1.000000 0.855575 -0.477444 -0.031104 0.531155
-0.886119 0.999033 -0.839054 0.449883 0.062177 -0.557253 0.900112 -0.997099 0.821722
-0.421886 -0.093191 0.582812 -0.913234 0.994200 -0.803594 0.393481 0.124114 -0.607806
0.925472 -0.990340 0.784689 -0.364696 -0.154917 0.632213 -0.936816 0.985521 -0.765025
0.335557 0.185570 -0.656008 0.947253 -0.979749 0.744621 -0.306094 -0.216044 0.679168
-0.956773 0.973030 -0.723496 0.276335 0.246309 -0.701672 0.965368 -0.965368 0.701672
-0.246309 -0.276335 0.723496 -0.973030 0.956773 -0.679168 0.216044 0.306094 -0.744621
0.979749 -0.947253 0.656008 -0.185570 -0.335557 0.765025 -0.985521 0.936816 -0.632213
0.154917 0.364696 -0.784689 0.990340 -0.925472 0.607806 -0.124114 -0.393481 0.803594
-0.994200 0.913234 -0.582812 0.093191 0.421886 -0.821722 0.997099 -0.900112 0.557253
-0.062177 -0.449883 0.839054 -0.999033 0.886119 -0.531155 0.031104 0.477444 -0.855575
1.000000 -0.871268 0.504544 ]
lambda = 3.757387 :[ -0.477444 0.839054 -0.997099 0.913234 -0.607806 0.154917 0.335557
-0.744621 0.973030 -0.965368 0.723496 -0.306094 -0.185570 0.632213 -0.925472 0.994200
-0.821722 0.449883 0.031104 -0.504544 0.855575 -0.999033 0.900112 -0.582812 0.124114
0.364696 -0.765025 0.979749 -0.956773 0.701672 -0.276335 -0.216044 0.656008 -0.936816
0.990340 -0.803594 0.421886 0.062177 -0.531155 0.871268 -1.000000 0.886119 -0.557253
0.093191 0.393481 -0.784689 0.985521 -0.947253 0.679168 -0.246309 -0.246309 0.679168
-0.947253 0.985521 -0.784689 0.393481 0.093191 -0.557253 0.886119 -1.000000 0.871268
-0.531155 0.062177 0.421886 -0.803594 0.990340 -0.936816 0.656008 -0.216044 -0.276335
0.701672 -0.956773 0.979749 -0.765025 0.364696 0.124114 -0.582812 0.900112 -0.999033
0.855575 -0.504544 0.031104 0.449883 -0.821722 0.994200 -0.925472 0.632213 -0.185570
-0.306094 0.723496 -0.965368 0.973030 -0.744621 0.335557 0.154917 -0.607806 0.913234
-0.997099 0.839054 -0.477444 ]

```

```

lambda = 3.786230 : [ 0.449883 -0.803594 0.985521 -0.956773 0.723496 -0.335557 -0.124114
0.557253 -0.871268 0.999033 -0.913234 0.632213 -0.216044 -0.246309 0.656008 -0.925472
0.997099 -0.855575 0.531155 -0.093191 -0.364696 0.744621 -0.965368 0.979749 -0.784689
0.421886 0.031104 -0.477444 0.821722 -0.990340 0.947253 -0.701672 0.306094 0.154917
-0.582812 0.886119 -1.000000 0.900112 -0.607806 0.185570 0.276335 -0.679168 0.936816
-0.994200 0.839054 -0.504544 0.062177 0.393481 -0.765025 0.973030 -0.973030 0.765025
-0.393481 -0.062177 0.504544 -0.839054 0.994200 -0.936816 0.679168 -0.276335 -0.185570
0.607806 -0.900112 1.000000 -0.886119 0.582812 -0.154917 -0.306094 0.701672 -0.947253
0.990340 -0.821722 0.477444 -0.031104 -0.421886 0.784689 -0.979749 0.965368 -0.744621
0.364696 0.093191 -0.531155 0.855575 -0.997099 0.925472 -0.656008 0.246309 0.216044
-0.632213 0.913234 -0.999033 0.871268 -0.557253 0.124114 0.335557 -0.723496 0.956773
-0.985521 0.803594 -0.449883 ]

lambda = 3.813345 : [ 0.421886 -0.765025 0.965368 -0.985521 0.821722 -0.504544 0.093191
0.335557 -0.701672 0.936816 -0.997099 0.871268 -0.582812 0.185570 0.246309 -0.632213
0.900112 -1.000000 0.913234 -0.656008 0.276335 0.154917 -0.557253 0.855575 -0.994200
0.947253 -0.723496 0.364696 0.062177 -0.477444 0.803594 -0.979749 0.973030 -0.784689
0.449883 -0.031104 -0.393481 0.744621 -0.956773 0.990340 -0.839054 0.531155 -0.124114
-0.306094 0.679168 -0.925472 0.999033 -0.886119 0.607806 -0.216044 -0.216044 0.607806
-0.886119 0.999033 -0.925472 0.679168 -0.306094 -0.124114 0.531155 -0.839054 0.990340
-0.956773 0.744621 -0.393481 -0.031104 0.449883 -0.784689 0.973030 -0.979749 0.803594
-0.477444 0.062177 0.364696 -0.723496 0.947253 -0.994200 0.855575 -0.557253 0.154917
0.276335 -0.656008 0.913234 -1.000000 0.900112 -0.632213 0.246309 0.185570 -0.582812
0.871268 -0.997099 0.936816 -0.701672 0.335557 0.093191 -0.504544 0.821722 -0.985521
0.965368 -0.765025 0.421886 ]

lambda = 3.838706 : [ -0.393481 0.723496 -0.936816 0.999033 -0.900112 0.656008 -0.306094
-0.093191 0.477444 -0.784689 0.965368 -0.990340 0.855575 -0.582812 0.216044 0.185570
-0.557253 0.839054 -0.985521 0.973030 -0.803594 0.504544 -0.124114 -0.276335 0.632213
-0.886119 0.997099 -0.947253 0.744621 -0.421886 0.031104 0.364696 -0.701672 0.925472
-1.000000 0.913234 -0.679168 0.335557 0.062177 -0.449883 0.765025 -0.956773 0.994200
-0.871268 0.607806 -0.246309 -0.154917 0.531155 -0.821722 0.979749 -0.979749 0.821722
-0.531155 0.154917 0.246309 -0.607806 0.871268 -0.994200 0.956773 -0.765025 0.449883
-0.062177 -0.335557 0.679168 -0.913234 1.000000 -0.925472 0.701672 -0.364696 -0.031104
0.421886 -0.744621 0.947253 -0.997099 0.886119 -0.632213 0.276335 0.124114 -0.504544
0.803594 -0.973030 0.985521 -0.839054 0.557253 -0.185570 -0.216044 0.582812 -0.855575
0.990340 -0.965368 0.784689 -0.477444 0.093191 0.306094 -0.656008 0.900112 -0.999033
0.936816 -0.723496 0.393481 ]

lambda = 3.862288 : [ -0.364696 0.679168 -0.900112 0.997099 -0.956773 0.784689 -0.504544
0.154917 0.216044 -0.557253 0.821722 -0.973030 0.990340 -0.871268 0.632213 -0.306094
-0.062177 0.421886 -0.723496 0.925472 -1.000000 0.936816 -0.744621 0.449883 -0.093191
-0.276335 0.607806 -0.855575 0.985521 -0.979749 0.839054 -0.582812 0.246309 0.124114
-0.477444 0.765025 -0.947253 0.999033 -0.913234 0.701672 -0.393481 0.031104 0.335557

```

```

-0.656008 0.886119 -0.994200 0.965368 -0.803594 0.531155 -0.185570 -0.185570 0.531155
-0.803594 0.965368 -0.994200 0.886119 -0.656008 0.335557 0.031104 -0.393481 0.701672
-0.913234 0.999033 -0.947253 0.765025 -0.477444 0.124114 0.246309 -0.582812 0.839054
-0.979749 0.985521 -0.855575 0.607806 -0.276335 -0.093191 0.449883 -0.744621 0.936816
-1.000000 0.925472 -0.723496 0.421886 -0.062177 -0.306094 0.632213 -0.871268 0.990340
-0.973030 0.821722 -0.557253 0.216044 0.154917 -0.504544 0.784689 -0.956773 0.997099
-0.900112 0.679168 -0.364696 ]
lambda = 3.884069 : [ -0.335557 0.632213 -0.855575 0.979749 -0.990340 0.886119 -0.679168
0.393481 -0.062177 -0.276335 0.582812 -0.821722 0.965368 -0.997099 0.913234 -0.723496
0.449883 -0.124114 -0.216044 0.531155 -0.784689 0.947253 -1.000000 0.936816 -0.765025
0.504544 -0.185570 -0.154917 0.477444 -0.744621 0.925472 -0.999033 0.956773 -0.803594
0.557253 -0.246309 -0.093191 0.421886 -0.701672 0.900112 -0.994200 0.973030 -0.839054
0.607806 -0.306094 -0.031104 0.364696 -0.656008 0.871268 -0.985521 0.985521 -0.871268
0.656008 -0.364696 0.031104 0.306094 -0.607806 0.839054 -0.973030 0.994200 -0.900112
0.701672 -0.421886 0.093191 0.246309 -0.557253 0.803594 -0.956773 0.999033 -0.925472
0.744621 -0.477444 0.154917 0.185570 -0.504544 0.765025 -0.936816 1.000000 -0.947253
0.784689 -0.531155 0.216044 0.124114 -0.449883 0.723496 -0.913234 0.997099 -0.965368
0.821722 -0.582812 0.276335 0.062177 -0.393481 0.679168 -0.886119 0.990340 -0.979749
0.855575 -0.632213 0.335557 ]
lambda = 3.904026 : [ -0.306094 0.582812 -0.803594 0.947253 -1.000000 0.956773 -0.821722
0.607806 -0.335557 0.031104 0.276335 -0.557253 0.784689 -0.936816 0.999033 -0.965368
0.839054 -0.632213 0.364696 -0.062177 -0.246309 0.531155 -0.765025 0.925472 -0.997099
0.973030 -0.855575 0.656008 -0.393481 0.093191 0.216044 -0.504544 0.744621 -0.913234
0.994200 -0.979749 0.871268 -0.679168 0.421886 -0.124114 -0.185570 0.477444 -0.723496
0.900112 -0.990340 0.985521 -0.886119 0.701672 -0.449883 0.154917 0.154917 -0.449883
0.701672 -0.886119 0.985521 -0.990340 0.900112 -0.723496 0.477444 -0.185570 -0.124114
0.421886 -0.679168 0.871268 -0.979749 0.994200 -0.913234 0.744621 -0.504544 0.216044
0.093191 -0.393481 0.656008 -0.855575 0.973030 -0.997099 0.925472 -0.765025 0.531155
-0.246309 -0.062177 0.364696 -0.632213 0.839054 -0.965368 0.999033 -0.936816 0.784689
-0.557253 0.276335 0.031104 -0.335557 0.607806 -0.821722 0.956773 -1.000000 0.947253
-0.803594 0.582812 -0.306094 ]
lambda = 3.922142 : [ 0.276335 -0.531155 0.744621 -0.900112 0.985521 -0.994200 0.925472
-0.784689 0.582812 -0.335557 0.062177 0.216044 -0.477444 0.701672 -0.871268 0.973030
-0.999033 0.947253 -0.821722 0.632213 -0.393481 0.124114 0.154917 -0.421886 0.656008
-0.839054 0.956773 -1.000000 0.965368 -0.855575 0.679168 -0.449883 0.185570 0.093191
-0.364696 0.607806 -0.803594 0.936816 -0.997099 0.979749 -0.886119 0.723496 -0.504544
0.246309 0.031104 -0.306094 0.557253 -0.765025 0.913234 -0.990340 0.990340 -0.913234
0.765025 -0.557253 0.306094 -0.031104 -0.246309 0.504544 -0.723496 0.886119 -0.979749
0.997099 -0.936816 0.803594 -0.607806 0.364696 -0.093191 -0.185570 0.449883 -0.679168
0.855575 -0.965368 1.000000 -0.956773 0.839054 -0.656008 0.421886 -0.154917 -0.124114
0.393481 -0.632213 0.821722 -0.947253 0.999033 -0.973030 0.871268 -0.701672 0.477444

```

```

-0.216044 -0.062177 0.335557 -0.582812 0.784689 -0.925472 0.994200 -0.985521 0.900112
-0.744621 0.531155 -0.276335 ]
lambda = 3.938398 :[ 0.246309 -0.477444 0.679168 -0.839054 0.947253 -0.997099 0.985521
-0.913234 0.784689 -0.607806 0.393481 -0.154917 -0.093191 0.335557 -0.557253 0.744621
-0.886119 0.973030 -1.000000 0.965368 -0.871268 0.723496 -0.531155 0.306094 -0.062177
-0.185570 0.421886 -0.632213 0.803594 -0.925472 0.990340 -0.994200 0.936816 -0.821722
0.656008 -0.449883 0.216044 0.031104 -0.276335 0.504544 -0.701672 0.855575 -0.956773
0.999033 -0.979749 0.900112 -0.765025 0.582812 -0.364696 0.124114 0.124114 -0.364696
0.582812 -0.765025 0.900112 -0.979749 0.999033 -0.956773 0.855575 -0.701672 0.504544
-0.276335 0.031104 0.216044 -0.449883 0.656008 -0.821722 0.936816 -0.994200 0.990340
-0.925472 0.803594 -0.632213 0.421886 -0.185570 -0.062177 0.306094 -0.531155 0.723496
-0.871268 0.965368 -1.000000 0.973030 -0.886119 0.744621 -0.557253 0.335557 -0.093191
-0.154917 0.393481 -0.607806 0.784689 -0.913234 0.985521 -0.997099 0.947253 -0.839054
0.679168 -0.477444 0.246309 ]
lambda = 3.952779 :[ 0.216044 -0.421886 0.607806 -0.765025 0.886119 -0.965368 0.999033
-0.985521 0.925472 -0.821722 0.679168 -0.504544 0.306094 -0.093191 -0.124114 0.335557
-0.531155 0.701672 -0.839054 0.936816 -0.990340 0.997099 -0.956773 0.871268 -0.744621
0.582812 -0.393481 0.185570 0.031104 -0.246309 0.449883 -0.632213 0.784689 -0.900112
0.973030 -1.000000 0.979749 -0.913234 0.803594 -0.656008 0.477444 -0.276335 0.062177
0.154917 -0.364696 0.557253 -0.723496 0.855575 -0.947253 0.994200 -0.994200 0.947253
-0.855575 0.723496 -0.557253 0.364696 -0.154917 -0.062177 0.276335 -0.477444 0.656008
-0.803594 0.913234 -0.979749 1.000000 -0.973030 0.900112 -0.784689 0.632213 -0.449883
0.246309 -0.031104 -0.185570 0.393481 -0.582812 0.744621 -0.871268 0.956773 -0.997099
0.990340 -0.936816 0.839054 -0.701672 0.531155 -0.335557 0.124114 0.093191 -0.306094
0.504544 -0.679168 0.821722 -0.925472 0.985521 -0.999033 0.965368 -0.886119 0.765025
-0.607806 0.421886 -0.216044 ]
lambda = 3.965270 :[ 0.185570 -0.364696 0.531155 -0.679168 0.803594 -0.900112 0.965368
-0.997099 0.994200 -0.956773 0.886119 -0.784689 0.656008 -0.504544 0.335557 -0.154917
-0.031104 0.216044 -0.393481 0.557253 -0.701672 0.821722 -0.913234 0.973030 -0.999033
0.990340 -0.947253 0.871268 -0.765025 0.632213 -0.477444 0.306094 -0.124114 -0.062177
0.246309 -0.421886 0.582812 -0.723496 0.839054 -0.925472 0.979749 -1.000000 0.985521
-0.936816 0.855575 -0.744621 0.607806 -0.449883 0.276335 -0.093191 -0.093191 0.276335
-0.449883 0.607806 -0.744621 0.855575 -0.936816 0.985521 -1.000000 0.979749 -0.925472
0.839054 -0.723496 0.582812 -0.421886 0.246309 -0.062177 -0.124114 0.306094 -0.477444
0.632213 -0.765025 0.871268 -0.947253 0.990340 -0.999033 0.973030 -0.913234 0.821722
-0.701672 0.557253 -0.393481 0.216044 -0.031104 -0.154917 0.335557 -0.504544 0.656008
-0.784689 0.886119 -0.956773 0.994200 -0.997099 0.965368 -0.900112 0.803594 -0.679168
0.531155 -0.364696 0.185570 ]
lambda = 3.975861 :[ 0.154917 -0.306094 0.449883 -0.582812 0.701672 -0.803594 0.886119
-0.947253 0.985521 -1.000000 0.990340 -0.956773 0.900112 -0.821722 0.723496 -0.607806
0.477444 -0.335557 0.185570 -0.031104 -0.124114 0.276335 -0.421886 0.557253 -0.679168

```

```

0.784689 -0.871268 0.936816 -0.979749 0.999033 -0.994200 0.965368 -0.913234 0.839054
-0.744621 0.632213 -0.504544 0.364696 -0.216044 0.062177 0.093191 -0.246309 0.393481
-0.531155 0.656008 -0.765025 0.855575 -0.925472 0.973030 -0.997099 0.997099 -0.973030
0.925472 -0.855575 0.765025 -0.656008 0.531155 -0.393481 0.246309 -0.093191 -0.062177
0.216044 -0.364696 0.504544 -0.632213 0.744621 -0.839054 0.913234 -0.965368 0.994200
-0.999033 0.979749 -0.936816 0.871268 -0.784689 0.679168 -0.557253 0.421886 -0.276335
0.124114 0.031104 -0.185570 0.335557 -0.477444 0.607806 -0.723496 0.821722 -0.900112
0.956773 -0.990340 1.000000 -0.985521 0.947253 -0.886119 0.803594 -0.701672 0.582812
-0.449883 0.306094 -0.154917 ]
lambda = 3.984540 :[ -0.124114 0.246309 -0.364696 0.477444 -0.582812 0.679168 -0.765025
0.839054 -0.900112 0.947253 -0.979749 0.997099 -0.999033 0.985521 -0.956773 0.913234
-0.855575 0.784689 -0.701672 0.607806 -0.504544 0.393481 -0.276335 0.154917 -0.031104
-0.093191 0.216044 -0.335557 0.449883 -0.557253 0.656008 -0.744621 0.821722 -0.886119
0.936816 -0.973030 0.994200 -1.000000 0.990340 -0.965368 0.925472 -0.871268 0.803594
-0.723496 0.632213 -0.531155 0.421886 -0.306094 0.185570 -0.062177 -0.062177 0.185570
-0.306094 0.421886 -0.531155 0.632213 -0.723496 0.803594 -0.871268 0.925472 -0.965368
0.990340 -1.000000 0.994200 -0.973030 0.936816 -0.886119 0.821722 -0.744621 0.656008
-0.557253 0.449883 -0.335557 0.216044 -0.093191 -0.031104 0.154917 -0.276335 0.393481
-0.504544 0.607806 -0.701672 0.784689 -0.855575 0.913234 -0.956773 0.985521 -0.999033
0.997099 -0.979749 0.947253 -0.900112 0.839054 -0.765025 0.679168 -0.582812 0.477444
-0.364696 0.246309 -0.124114 ]
lambda = 3.991299 :[ -0.093191 0.185570 -0.276335 0.364696 -0.449883 0.531155 -0.607806
0.679168 -0.744621 0.803594 -0.855575 0.900112 -0.936816 0.965368 -0.985521 0.997099
-1.000000 0.994200 -0.979749 0.956773 -0.925472 0.886119 -0.839054 0.784689 -0.723496
0.656008 -0.582812 0.504544 -0.421886 0.335557 -0.246309 0.154917 -0.062177 -0.031104
0.124114 -0.216044 0.306094 -0.393481 0.477444 -0.557253 0.632213 -0.701672 0.765025
-0.821722 0.871268 -0.913234 0.947253 -0.973030 0.990340 -0.999033 0.999033 -0.990340
0.973030 -0.947253 0.913234 -0.871268 0.821722 -0.765025 0.701672 -0.632213 0.557253
-0.477444 0.393481 -0.306094 0.216044 -0.124114 0.031104 0.062177 -0.154917 0.246309
-0.335557 0.421886 -0.504544 0.582812 -0.656008 0.723496 -0.784689 0.839054 -0.886119
0.925472 -0.956773 0.979749 -0.994200 1.000000 -0.997099 0.985521 -0.965368 0.936816
-0.900112 0.855575 -0.803594 0.744621 -0.679168 0.607806 -0.531155 0.449883 -0.364696
0.276335 -0.185570 0.093191 ]
lambda = 3.996131 :[ -0.062177 0.124114 -0.185570 0.246309 -0.306094 0.364696 -0.421886
0.477444 -0.531155 0.582812 -0.632213 0.679168 -0.723496 0.765025 -0.803594 0.839054
-0.871268 0.900112 -0.925472 0.947253 -0.965368 0.979749 -0.990340 0.997099 -1.000000
0.999033 -0.994200 0.985521 -0.973030 0.956773 -0.936816 0.913234 -0.886119 0.855575
-0.821722 0.784689 -0.744621 0.701672 -0.656008 0.607806 -0.557253 0.504544 -0.449883
0.393481 -0.335557 0.276335 -0.216044 0.154917 -0.093191 0.031104 0.031104 -0.093191
0.154917 -0.216044 0.276335 -0.335557 0.393481 -0.449883 0.504544 -0.557253 0.607806
-0.656008 0.701672 -0.744621 0.784689 -0.821722 0.855575 -0.886119 0.913234 -0.936816

```



```

0.956773 -0.973030 0.985521 -0.994200 0.999033 -1.000000 0.997099 -0.990340 0.979749
-0.965368 0.947253 -0.925472 0.900112 -0.871268 0.839054 -0.803594 0.765025 -0.723496
0.679168 -0.632213 0.582812 -0.531155 0.477444 -0.421886 0.364696 -0.306094 0.246309
-0.185570 0.124114 -0.062177 ]
lambda = 3.999033 :[ -0.031104 0.062177 -0.093191 0.124114 -0.154917 0.185570 -0.216044
0.246309 -0.276335 0.306094 -0.335557 0.364696 -0.393481 0.421886 -0.449883 0.477444
-0.504544 0.531155 -0.557253 0.582812 -0.607806 0.632213 -0.656008 0.679168 -0.701672
0.723496 -0.744621 0.765025 -0.784689 0.803594 -0.821722 0.839054 -0.855575 0.871268
-0.886119 0.900112 -0.913234 0.925472 -0.936816 0.947253 -0.956773 0.965368 -0.973030
0.979749 -0.985521 0.990340 -0.994200 0.997099 -0.999033 1.000000 -1.000000 0.999033
-0.997099 0.994200 -0.990340 0.985521 -0.979749 0.973030 -0.965368 0.956773 -0.947253
0.936816 -0.925472 0.913234 -0.900112 0.886119 -0.871268 0.855575 -0.839054 0.821722
-0.803594 0.784689 -0.765025 0.744621 -0.723496 0.701672 -0.679168 0.656008 -0.632213
0.607806 -0.582812 0.557253 -0.531155 0.504544 -0.477444 0.449883 -0.421886 0.393481
-0.364696 0.335557 -0.306094 0.276335 -0.246309 0.216044 -0.185570 0.154917 -0.124114
0.093191 -0.062177 0.031104 ]

```

Process finished with exit code 0