

# New Graph

[2, 3, 1, 2], [4, 4, 4, 3]

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$$\pi = [3, 5, 6, 7]$$

POSSIBLE RANKS

$$\begin{matrix} 1 \times 21 \\ 3 \times 7 \end{matrix}$$

BASE DETERMINANT 17/64, .2656250000

*NullSpace* of  $\Delta$

$$\{1, 2, 3, 4\}$$

$$\text{Range of } \Delta: [\lambda_2, \lambda_3, \lambda_1, -\lambda_2 - \lambda_3 - \lambda_1]$$

1. Coloring, {}

**R:** [2, 3, 1, 2]    **B:** [4, 4, 4, 3]

' See graph

' ' See pair graph

'

$\Omega$  for  $A + \tau \Delta$  :

$$\begin{bmatrix} -21(1 + \tau^2), 21(1 + \tau^2), -42(3 + \tau^2), 21(-1 + \tau^2) \\ 7 + 4\tau + \tau^2 \end{bmatrix}$$

For  $\tau=1/2$ , [-39, -57, -52, -37] . FixedPtCheck, [39, 57, 52, 37]

$$\det(A + \tau \Delta) = 1(1 + \tau)^2(-1 + \tau)$$

$\Delta$ -Rank	$A+(1/2)\Delta$	$A-(1/2)\Delta$	<b>R</b>	<b>B</b>
3 vs 3	4 vs 4	4 vs 4	3 vs 3	2 vs 2

bi =

$$\begin{aligned} & \$ [ [0, 1/4, 0, 3/4], [0, 0, 1/4, 3/4], [1/4, 0, 0, 3/4], [0, 1/4, 3/4, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [19/273, -134/117, -200/819, 160/117], [85/273, 496/819, -8/819, -704/819], [-29/273, \\ & -194/819, 256/819, 64/819], [-5/273, 214/819, -128/819, -32/819] ] \$ \times \$ [ [3/2, 5/2, 13/2, 21/2], [13/8, \\ & 3, 17/2, 63/8], [17/8, 19/8, 213/32, 315/32], [213/128, 383/128, 1021/128, 1071/128] ] \$ \end{aligned}$$

Check x AllOnes: [1, 1, 1, 1]

Omega Rank for R : cycles: {{1, 2, 3}}, net cycles: 1 . order: 3

$$[y_1, y_2, y_3, 0]$$

$$\begin{aligned} R = & \$ [ [0, 1, 0, 0], [0, 0, 1, 0], [1, 0, 0, 0], [0, 1, 0, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 0] ] \$ = \\ & \$ [ [10/63, -2/63, -5/63], [-5/63, 10/63, -2/63], [-2/63, -5/63, 10/63], [10/63, -2/63, -5/63] ] \$ \times \\ & \$ [ [6, 10, 5, 0], [5, 6, 10, 0], [10, 5, 6, 0] ] \$ \end{aligned}$$

Omega Rank for B : cycles: {{3, 4}}, net cycles: 1 . order: 2

$$[0, 0, y_1, y_2]$$

$$\begin{aligned} B = & \$ [ [0, 0, 0, 1], [0, 0, 0, 1], [0, 0, 0, 1], [0, 0, 1, 0] ] \$ \times \$ [ [0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [2/21, -1/21], [2/21, -1/21], [2/21, -1/21], [-1/21, 2/21] ] \$ \times \$ [ [0, 0, 7, 14], [0, 0, 14, 7] ] \$ \end{aligned}$$

Â» SYNC'D 7/16 , 0.4375000000

2 . Coloring, {2}

**R:** [2, 4, 1, 2]    **B:** [4, 3, 4, 3]

' See graph

' ' See pair graph

'

Ω for A+τΔ :

$$\begin{aligned} & '[ '21' (' 1 + \tau ')'' (' 3 + \tau ')'' (' - 1 + \tau ')', 21' (' 1 + \tau ')'' (' - 5 + \tau ^ 2 ')', 42' (' 3 + \tau ')'' (' - 1 \\ & + \tau ')', -21' (' 7 - \tau + \tau ^ 2 + \tau ^ 3 ')'' ]' \end{aligned}$$

For τ=1/2, [-21, -57, -28, -55] . FixedPtCheck, [21, 57, 28, 55]

$$\det(A + \tau \Delta) = 1' (' 1 + \tau ')'^ 2 ' (' - 1 + \tau ')'$$

$\Delta$ -Rank	$A+(1/2)\Delta$	$A-(1/2)\Delta$	<b>R</b>	<b>B</b>
3 vs 3	3 vs 4	4 vs 4	3 vs 3	2 vs 2

bi =

$$\begin{aligned}
 & \$ [ [0, 1/4, 0, 3/4], [0, 0, 3/4, 1/4], [1/4, 0, 0, 3/4], [0, 1/4, 3/4, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\
 & \$ [ [39/28, 467/84, 155/21, -100/7], [-3/28, -45/28, -55/21, 92/21], [47/84, 257/84, 19/7, -44/7], \\
 & [-6/7, -27/7, -76/21, 176/21] ] \$ \times \$ [ [3/2, 5/2, 9, 8], [9/4, 19/8, 63/8, 17/2], [63/32, 43/16, 261/32, \\
 & 131/16], [261/128, 325/128, 261/32, 529/64] ] \$
 \end{aligned}$$

Check x AllOnes: [1, 1, 1, 1]

Omega Rank for R : cycles: {{2, 4}}, net cycles: 0 . order: 2

$$[y_3, y_2, 0, y_1]$$

$$\begin{aligned}
 R = & \$ [ [0, 1, 0, 0], [0, 0, 0, 1], [1, 0, 0, 0], [0, 1, 0, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 0, 0], [0, 0, 0, 1] ] \$ = \\
 & \$ [ [0, 11/21, -10/21], [0, -10/21, 11/21], [1/6, -10/21, 5/14], [0, 11/21, -10/21] ] \$ \times \$ [ [6, 10, 0, 5], [0, 11, 0, 10], [0, 10, 0, 11] ] \$
 \end{aligned}$$

Omega Rank for B : cycles: {{3, 4}}, net cycles: 1 . order: 2

$$[0, 0, y_1, y_2]$$

$$\begin{aligned}
 B = & \$ [ [0, 0, 0, 1], [0, 0, 1, 0], [0, 0, 0, 1], [0, 0, 1, 0] ] \$ \times \$ [ [0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\
 & \$ [ [-1/7, 4/21], [4/21, -1/7], [-1/7, 4/21], [4/21, -1/7] ] \$ \times \$ [ [0, 0, 12, 9], [0, 0, 9, 12] ] \$
 \end{aligned}$$

Â» SYNC'D 1/8 , 0.1250000000

3 . Coloring, {3}

**R**: [2, 3, 4, 2]    **B**: [4, 4, 1, 3]

‘ See graph

‘ ‘ See pair graph

‘

Ω for  $A+\tau\Delta$  :

$$\begin{aligned}
 & [ \text{' -21' ( ' - 1 + \tau ' )'' ( ' 3 + \tau ^ 2 ' )' , 21' ( ' 1 + \tau ' )'' ( ' 5 - 2\tau + \tau ^ 2 ' )' , 42' ( ' 3 + \tau ^ 2 ' )' , 21' ( ' 7 - } \\
 & \tau + \tau ^ 2 + \tau ^ 3 ' )'' ] \text{' }
 \end{aligned}$$

For  $\tau=1/2$ , [13, 51, 52, 55] . FixedPtCheck, [13, 51, 52, 55]

$$\det(A + \tau \Delta) = 1' (' 1 + \tau ' )'' (' - 1 + \tau ' )' 2$$

$\Delta$ -Rank	$A+(1/2)\Delta$	$A-(1/2)\Delta$	<b>R</b>	<b>B</b>
3 vs 3	4 vs 4	4 vs 4	3 vs 3	3 vs 3

bi =

$$\begin{aligned} & \$ [ [0, 1/4, 0, 3/4], [0, 0, 1/4, 3/4], [3/4, 0, 0, 1/4], [0, 1/4, 3/4, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [-227/819, -718/819, 632/819, 352/819], [23/91, -592/819, 296/819, 128/819], [9/91, 710/819, 464/819, -1216/819], [-1/273, 122/819, -880/819, 800/819] ] \$ \times \$ [ [9/2, 5/2, 13/2, 15/2], [39/8, 3, 25/4, 55/8], [75/16, 47/16, 189/32, 239/32], [567/128, 389/128, 811/128, 921/128] ] \$ \end{aligned}$$

Check x AllOnes: [1, 1, 1, 1]

Omega Rank for R : cycles: {{2, 3, 4}}, net cycles: 1 . order: 3

$$[0, y_1, y_2, y_3]$$

$$\begin{aligned} R = & \$ [ [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1], [0, 1, 0, 0] ] \$ \times \$ [ [0, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [10/63, -2/63, -5/63], [-5/63, 10/63, -2/63], [-2/63, -5/63, 10/63], [10/63, -2/63, -5/63] ] \$ \times \\ & \$ [ [0, 10, 5, 6], [0, 6, 10, 5], [0, 5, 6, 10] ] \$ \end{aligned}$$

Omega Rank for B : cycles: {{1, 3, 4}}, net cycles: 1 . order: 3

$$[y_1, 0, y_2, y_3]$$

$$\begin{aligned} B = & \$ [ [0, 0, 0, 1], [0, 0, 0, 1], [1, 0, 0, 0], [0, 0, 1, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 0, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [22/63, -20/63, 1/63], [22/63, -20/63, 1/63], [-20/63, 1/63, 22/63], [1/63, 22/63, -20/63] ] \$ \\ & \times \$ [ [6, 0, 7, 8], [7, 0, 8, 6], [8, 0, 6, 7] ] \$ \end{aligned}$$

Â» SYNC'D 7/32 , 0.2187500000

4 . Coloring, {4}

**R:** [2, 3, 1, 3]    **B:** [4, 4, 4, 2]

' See graph

' ' See pair graph

'

Ω for A+τΔ :

$$\begin{aligned} & [ ' 21' (' 1 + \tau ' )' 2 ' (' - 3 + \tau ' )' , -21' (' 5 - \tau + 3\tau^2 + \tau^3 ' )' , 42' (' 1 + \tau ' )'' (' - 3 + \tau ' )' , 21' \\ & (' - 1 + \tau ' )'' (' 7 + 4\tau + \tau^2 ' )' ]' \end{aligned}$$

For  $\tau=1/2$ ,  $[-45, -43, -60, -37]$  . FixedPtCheck,  $[45, 43, 60, 37]$

$$\det(A + \tau \Delta) = 1 \cdot (1 + \tau)^2 \cdot (-1 + \tau)$$

$\Delta$ -Rank	$A+(1/2)\Delta$	$A-(1/2)\Delta$	<b>R</b>	<b>B</b>
3 vs 3	4 vs 4	4 vs 4	3 vs 3	2 vs 2

bi =

$$\begin{aligned} & \$ [ [0, 1/4, 0, 3/4], [0, 0, 1/4, 3/4], [1/4, 0, 0, 3/4], [0, 3/4, 1/4, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [15/49, 38/49, 8/147, -160/147], [-1/49, 26/147, 16/49, -64/147], [5/49, -88/147, -16/147, 32/49], [-3/49, 8/147, -8/49, 32/147] ] \$ \times \$ [ [3/2, 6, 3, 21/2], [3/4, 33/4, 33/8, 63/8], [33/32, 195/32, 129/32, 315/32], [129/128, 489/64, 255/64, 1071/128] ] \$ \end{aligned}$$

Check x AllOnes:  $[1, 1, 1, 1]$

Omega Rank for R : cycles:  $\{\{1, 2, 3\}\}$ , net cycles: 1 . order: 3

$$[y_1, y_2, y_3, 0]$$

$$\begin{aligned} R = & \$ [ [0, 1, 0, 0], [0, 0, 1, 0], [1, 0, 0, 0], [0, 0, 1, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 0] ] \$ = \\ & \$ [ [-1/21, 0, 2/21], [2/21, -1/21, 0], [0, 2/21, -1/21], [2/21, -1/21, 0] ] \$ \times \$ [ [6, 3, 12, 0], [12, 6, 3, 0], [3, 12, 6, 0] ] \$ \end{aligned}$$

Omega Rank for B : cycles:  $\{\{2, 4\}\}$ , net cycles: 1 . order: 2

$$[0, y_1, 0, y_2]$$

$$\begin{aligned} B = & \$ [ [0, 0, 0, 1], [0, 0, 0, 1], [0, 0, 0, 1], [0, 1, 0, 0] ] \$ \times \$ [ [0, 0, 0, 0], [0, 1, 0, 0], [0, 0, 0, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [2/21, -1/21], [2/21, -1/21], [2/21, -1/21], [-1/21, 2/21] ] \$ \times \$ [ [0, 7, 0, 14], [0, 14, 0, 7] ] \$ \end{aligned}$$

$\hat{A} \gg \text{SYNC'D } 7/16, 0.4375000000$

5 . Coloring,  $\{2, 3\}$

**R**:  $[2, 4, 4, 2]$    **B**:  $[4, 3, 1, 3]$

' See graph

' ' See pair graph

'

$\Omega$  for  $A+\tau\Delta$  :

$$[ 21(3 + \tau)^2(-1 + \tau)^2, 21(1 + \tau)^2(5 - 2\tau + \tau^2), -42(3 + \tau)(-1 + \tau), -21(-7 - \tau - \tau^2 + \tau^3) ]$$

For  $\tau=1/2$ , [7, 51, 28, 61] . FixedPtCheck, [7, 51, 28, 61]

$$\det(A + \tau \Delta) = 1(1 + \tau)^2(-1 + \tau)^2$$

$\Delta$ -Rank	$A+(1/2)\Delta$	$A-(1/2)\Delta$	<b>R</b>	<b>B</b>
3 vs 3	4 vs 4	4 vs 4	2 vs 2	3 vs 3

bi =

$$\begin{aligned} & \$ [ [0, 1/4, 0, 3/4], [0, 0, 3/4, 1/4], [3/4, 0, 0, 1/4], [0, 1/4, 3/4, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [1/10, 11/630, 38/105, -136/315], [43/70, 13/210, 22/105, -88/105], [-13/210, 137/630, -2/15, 8/315], [-2/7, -5/21, -4/21, 16/21] ] \$ \times \$ [ [9/2, 5/2, 9, 5], [27/4, 19/8, 45/8, 25/4], [135/32, 13/4, 207/32, 113/16], [621/128, 361/128, 495/64, 179/32] ] \$ \end{aligned}$$

Check x AllOnes: [1, 1, 1, 1]

Omega Rank for R : cycles: {{2, 4}}, net cycles: 1 . order: 2

$$[0, y_2, 0, y_1]$$

$$\begin{aligned} R = & \$ [ [0, 1, 0, 0], [0, 0, 0, 1], [0, 0, 0, 1], [0, 1, 0, 0] ] \$ \times \$ [ [0, 0, 0, 0], [0, 1, 0, 0], [0, 0, 0, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [-10/21, 11/21], [11/21, -10/21], [11/21, -10/21], [-10/21, 11/21] ] \$ \times \$ [ [0, 10, 0, 11], [0, 11, 0, 10] ] \$ \end{aligned}$$

Omega Rank for B : cycles: {{1, 3, 4}}, net cycles: 1 . order: 3

$$[y_1, 0, y_2, y_3]$$

$$\begin{aligned} B = & \$ [ [0, 0, 0, 1], [0, 0, 1, 0], [1, 0, 0, 0], [0, 0, 1, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 0, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [-1/21, 0, 2/21], [2/21, -1/21, 0], [0, 2/21, -1/21], [2/21, -1/21, 0] ] \$ \times \$ [ [6, 0, 12, 3], [12, 0, 3, 6], [3, 0, 6, 12] ] \$ \end{aligned}$$

$\hat{A}$ » SYNC'D 7/16 , 0.4375000000

6 . Coloring, {2, 4}

**R:** [2, 4, 1, 3]   **B:** [4, 3, 4, 2]

' See graph

‘ ‘ See pair graph

‘

$\Omega$  for  $A+\tau\Delta$  :

$$[ 21^2 (1 + \tau^2), 21^2 (5 - \tau + 3\tau^2 + \tau^3), 42^2 (3 + \tau^2), 21^2 (7 - \tau + \tau^2 + \tau^3) ]$$

For  $\tau=1/2$ , [39, 43, 52, 55] . FixedPtCheck, [39, 43, 52, 55]

$$\det(A + \tau \Delta) = 1^2 (1 + 3\tau^2) (1 + \tau^2)$$

$\Delta$ -Rank	$A+(1/2)\Delta$	$A-(1/2)\Delta$	<b>R</b>	<b>B</b>
3 vs 3	3 vs 4	4 vs 4	4 vs 4	3 vs 3

bi =

$$[ [0, 1/4, 0, 3/4], [0, 0, 3/4, 1/4], [1/4, 0, 0, 3/4], [0, 3/4, 1/4, 0] ] \times [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] =$$

$$[ [89/132, -1/132, 5/231, -148/231], [1/12, 25/84, 13/21, -20/21], [-13/132, -613/924, 23/231, 164/231], [-4/33, 83/231, -124/231, 80/231] ] \times [ [3/2, 6, 11/2, 8], [11/8, 51/8, 13/2, 27/4], [13/8, 173/32, 207/32, 15/2], [207/128, 193/32, 759/128, 475/64] ]$$

Check x AllOnes: [1, 1, 1, 1]

Omega Rank for R : cycles: {{1, 2, 3, 4}}, net cycles: 1 . order: 4

$$[y_1, y_2, y_3, y_4]$$

$$R = [ [0, 1, 0, 0], [0, 0, 0, 1], [1, 0, 0, 0], [0, 0, 1, 0] ] \times [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] = [ [-127/357, 104/357, -43/357, 83/357], [83/357, -127/357, 104/357, -43/357], [104/357, -43/357, 83/357, -127/357], [-43/357, 83/357, -127/357, 104/357] ] \times [ [6, 3, 7, 5], [7, 6, 5, 3], [5, 7, 3, 6], [3, 5, 6, 7] ]$$

Omega Rank for B : cycles: {{2, 3, 4}}, net cycles: 1 . order: 3

$$[0, y_1, y_2, y_3]$$

$$B = [ [0, 0, 0, 1], [0, 0, 1, 0], [0, 0, 0, 1], [0, 1, 0, 0] ] \times [ [0, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] = [ [23/126, -19/126, 1/63], [-19/126, 1/63, 23/126], [23/126, -19/126, 1/63], [1/63, 23/126, -19/126] ] \times [ [0, 7, 5, 9], [0, 9, 7, 5], [0, 5, 9, 7] ]$$

Â» SYNC'D 5/32 , 0.1562500000

7 . Coloring, {3, 4}

**R:** [2, 3, 4, 3]    **B:** [4, 4, 1, 2]

‘ See graph

‘ ‘ See pair graph

Ω for A+τΔ :

$$[ '21' ( '1 + \tau ' ) ' ( ' - 1 + \tau ' ) ' ( ' - 3 + \tau ' ) ' , -21' ( '5 + 2\tau + \tau^2 ' ) ' ( ' - 1 + \tau ' ) ' , -42' ( '1 + \tau ' ) ' ( ' - 3 + \tau ' ) ' , 21' ( '7 - \tau + \tau^2 + \tau^3 ' ) ' ]'$$

For τ=1/2, [3, 5, 12, 11] . FixedPtCheck, [3, 5, 12, 11]

$$\det(A + \tau \Delta) = 1' ( '1 + \tau ' ) ' ( ' - 1 + \tau ' ) ' ^2$$

Δ-Rank	A+(1/2)Δ	A-(1/2)Δ	R	B
3 vs 3	4 vs 4	4 vs 4	3 vs 3	3 vs 3

bi =

$$\begin{aligned} & \$ [ [0, 1/4, 0, 3/4], [0, 0, 1/4, 3/4], [3/4, 0, 0, 1/4], [0, 3/4, 1/4, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [1/231, 278/693, -24/77, -32/693], [-17/77, -6/77, -16/33, 64/77], [3/11, -12/77, -16/77, 32/231], \\ & [5/77, 4/231, 152/231, -160/231] ] \$ \times \$ [ [9/2, 6, 3, 15/2], [9/4, 27/4, 27/8, 69/8], [81/32, 225/32, 123/32, 243/32], [369/128, 405/64, 117/32, 1041/128] ] \$ \end{aligned}$$

Check x AllOnes: [1, 1, 1, 1]

Omega Rank for R : cycles: {{3, 4}}, net cycles: 0 . order: 2

$$[0, y_1, y_2, y_3]$$

$$\begin{aligned} R = & \$ [ [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1], [0, 0, 1, 0] ] \$ \times \$ [ [0, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [1/3, 4/21, -10/21], [0, -1/7, 4/21], [0, 4/21, -1/7], [0, -1/7, 4/21] ] \$ \times \$ [ [0, 3, 12, 6], [0, 0, 9, 12], [0, 0, 12, 9] ] \$ \end{aligned}$$

Omega Rank for B : cycles: {{2, 4}}, net cycles: 0 . order: 2

$$[y_1, y_2, 0, y_3]$$

$$\begin{aligned} B = & \$ [ [0, 0, 0, 1], [0, 0, 0, 1], [1, 0, 0, 0], [0, 1, 0, 0] ] \$ \times \$ [ [1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 0, 0], [0, 0, 0, 1] ] \$ = \\ & \$ [ [0, 13/105, -8/105], [0, 13/105, -8/105], [1/6, -8/105, -3/70], [0, -8/105, 13/105] ] \$ \times \$ [ [6, 7, 0, 8], [0, 8, 0, 13], [0, 13, 0, 8] ] \$ \end{aligned}$$





$$B = \begin{bmatrix} 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix} \times \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} = \begin{bmatrix} -5/21 & -4/105 & 17/105 & 17/105 \\ 17/105 & 17/105 & -5/21 & -4/105 \\ -4/105 & 17/105 & 17/105 & -5/21 \\ 17/105 & -5/21 & -4/105 & 17/105 \end{bmatrix} \times \begin{bmatrix} 6 & 7 & 5 & 3 \\ 5 & 3 & 7 & 6 \\ 7 & 6 & 3 & 5 \\ 3 & 5 & 6 & 7 \end{bmatrix}$$

Â» SYNC'D 1/16 , 0.0625000000

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SUMMARY	
<b>Graph Type</b>	NOT CC
$v(A)$	0
$v(\Delta)$	1
$\pi$	[3, 5, 6, 7]
<b>Dbly Stoch</b>	false

SANDWICH		Total 0
No .	Coloring	Rank

RT GROUPS		Total 0	
No .	Coloring	Rank	Solv

$\Delta$ -RANK'D	SC'D !RK'D	$\tau$ -RANK'D	R/B RANK'D	NOT SYNC'D	Total Runs	$2^{n-1}$
8	0	6, 8	8, 8	0	8	8

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