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## Abstract

## 1 Problem

Aqui

$$\begin{pmatrix} a_{1,1} & a_{1,2} & a_{1,3} & a_{1,4} \\ a_{2,1} & a_{2,2} & a_{2,3} & a_{2,4} \\ a_{3,1} & a_{3,2} & a_{3,3} & a_{3,4} \\ a_{4,1} & a_{4,2} & a_{4,3} & a_{4,4} \end{pmatrix} \begin{pmatrix} y_{1,1} & y_{1,2} & y_{1,3} & y_{1,4} \\ y_{2,1} & y_{2,2} & y_{2,3} & y_{2,4} \\ y_{3,1} & y_{3,2} & y_{3,3} & y_{3,4} \\ y_{4,1} & y_{4,2} & y_{4,3} & y_{4,4} \end{pmatrix} - \begin{pmatrix} y_{1,1} & y_{1,2} & y_{1,3} & y_{1,4} \\ y_{2,1} & y_{2,2} & y_{2,3} & y_{2,4} \\ y_{3,1} & y_{3,2} & y_{3,3} & y_{3,4} \\ y_{4,1} & y_{4,2} & y_{4,3} & y_{4,4} \end{pmatrix} \begin{pmatrix} t_{1,1} & t_{1,2} & t_{1,3} & t_{1,4} \\ 0 & t_{2,2} & t_{2,3} & t_{2,4} \\ 0 & 0 & t_{3,3} & t_{3,4} \\ 0 & 0 & t_{4,3} & t_{4,4} \end{pmatrix} = \begin{pmatrix} d_{1,1} & d_{1,2} & d_{1,3} & d_{1,4} \\ d_{2,1} & d_{2,2} & d_{2,3} & d_{2,4} \\ d_{3,1} & d_{3,2} & d_{3,3} & d_{3,4} \\ d_{4,1} & d_{4,2} & d_{4,3} & d_{4,4} \end{pmatrix} \quad (1)$$

$$\begin{pmatrix} y_{1,1} & y_{1,2} & y_{1,3} & y_{1,4} \\ y_{2,1} & y_{2,2} & y_{2,3} & y_{2,4} \\ y_{3,1} & y_{3,2} & y_{3,3} & y_{3,4} \\ y_{4,1} & y_{4,2} & y_{4,3} & y_{4,4} \end{pmatrix} \begin{pmatrix} t_{1,1} & t_{1,2} & t_{1,3} & t_{1,4} \\ 0 & t_{2,2} & t_{2,3} & t_{2,4} \\ 0 & 0 & t_{3,3} & t_{3,4} \\ 0 & 0 & t_{4,3} & t_{4,4} \end{pmatrix} \quad (2)$$

$$AY_{\cdot,3} - \begin{pmatrix} y_{1,i}t_{i,3} + \cdots + y_{1,3}t_{3,3} + y_{1,4}t_{4,3} \\ y_{2,i}t_{i,3} + \cdots + y_{2,3}t_{3,3} + y_{2,4}t_{4,3} \\ y_{3,i}t_{i,3} + \cdots + y_{3,3}t_{3,3} + y_{3,4}t_{4,3} \\ y_{4,i}t_{i,3} + \cdots + y_{4,3}t_{3,3} + y_{4,4}t_{4,3} \end{pmatrix} = D_{\cdot,3} \quad (3)$$

$$AY_{\cdot,3} - \sum_{i=1}^2 Y_{\cdot,i}t_{i,3} - Y_{\cdot,3}t_{3,3} - Y_{\cdot,4}t_{4,3} = D_{\cdot,3} \quad (4)$$

$$AY_{\cdot,4} - \begin{pmatrix} y_{1,i}t_{i,4} + \cdots + y_{1,3}t_{3,4} + y_{1,4}t_{4,4} \\ y_{2,i}t_{i,4} + \cdots + y_{2,3}t_{3,4} + y_{2,4}t_{4,4} \\ y_{3,i}t_{i,4} + \cdots + y_{3,3}t_{3,4} + y_{3,4}t_{4,4} \\ y_{4,i}t_{i,4} + \cdots + y_{4,3}t_{3,4} + y_{4,4}t_{4,4} \end{pmatrix} = D_{\cdot,4} \quad (5)$$

$$AY_{.,4} - \sum_{i=1}^2 Y_{.,i} t_{i,4} - Y_{.,3} t_{3,4} - Y_{.,4} t_{4,4} = D_{.,4} \quad (6)$$

$$AY_{.,3} - \sum_{i=1}^2 Y_{.,i} t_{i,3} - Y_{.,3} t_{3,3} - Y_{.,4} t_{4,3} = D_{.,3} \quad (7)$$

$$AY_{.,4} - \sum_{i=1}^2 Y_{.,i} t_{i,4} - Y_{.,3} t_{3,4} - Y_{.,4} t_{4,4} = D_{.,4} \quad (8)$$

$$AY_{.,3} - K - Y_{.,3} t_{3,3} - Y_{.,4} t_{4,3} = D_{.,3} \quad (9)$$

$$AY_{.,4} - S - Y_{.,3} t_{3,4} - Y_{.,4} t_{4,4} = D_{.,4} \quad (10)$$

$$K = \sum_{i=1}^2 Y_{.,i} t_{i,3} \quad (11)$$

$$S = \sum_{i=1}^2 Y_{.,i} t_{i,4} \quad (12)$$

$$AY_{.,3} - Y_{.,3} t_{3,3} - Y_{.,4} t_{4,3} = D_{.,3} + K \quad (13)$$

$$AY_{.,4} - Y_{.,3} t_{3,4} - Y_{.,4} t_{4,4} = D_{.,4} + S \quad (14)$$

$$AY_{.,3} - Y_{.,3} t_{3,3} - Y_{.,4} t_{4,3} = D_k \quad (15)$$

$$AY_{.,4} - Y_{.,3} t_{3,4} - Y_{.,4} t_{4,4} = D_s \quad (16)$$

$$(17)$$

$$(A - t_{3,3}I)Y_{.,3} - Y_{.,4} t_{4,3} = D_k \quad (18)$$

$$(A - t_{3,3}I)Y_{.,3} - D_k = Y_{.,4} t_{4,3} \quad (19)$$

$$\frac{(A - t_{3,3}I)Y_{.,3}}{t_{4,3}} - \frac{D_k}{t_{4,3}} = Y_{.,4} \quad (20)$$

$$\frac{(A - t_{3,3}I)}{t_{4,3}} Y_{.,3} - \frac{D_k}{t_{4,3}} = Y_{.,4} \quad (21)$$

$$P = \frac{D_k}{t_{4,3}} \quad (22)$$

$$R = \frac{(A - t_{3,3}I)}{t_{4,3}} \quad (23)$$

$$RY_{.,3} - P = Y_{.,4} \quad (24)$$

$$AY_{.,4} - Y_{.,3} t_{3,4} - Y_{.,4} t_{4,4} = D_s \quad (25)$$

$$(26)$$

$$RY_{,3} - P = Y_{,4} \quad (27)$$

$$A(RY_{,3} - P) - Y_{,3}t_{3,4} - (RY_{,3} - P)t_{4,4} = D_s \quad (28)$$

$$ARY_{,3} - AP - Y_{,3}t_{3,4} - RY_{,3}t_{4,4} + Pt_{4,4} = D_s \quad (29)$$

$$(AR - t_{3,4}I - Rt_{4,4})Y_{,3} - AP + Pt_{4,4} = D_s \quad (30)$$

$$(AR - t_{3,4}I - Rt_{4,4})Y_{,3} = D_s + AP - Pt_{4,4} \quad (31)$$

$$Z = AR - t_{3,4}I - Rt_{4,4} \quad (32)$$

$$W = D_s + AP - Pt_{4,4} \quad (33)$$

$$ZY_{,3} = W \quad (34)$$

$$(35)$$

$$AY_{,4} - Y_{,3}t_{3,4} - Y_{,4}t_{4,4} = D_s \quad (36)$$

$$AY_{,4} - Y_{,4}t_{4,4} - D_s = Y_{,3}t_{3,4} \quad (37)$$

$$\frac{AY_{,4} - Y_{,4}t_{4,4} - D_s}{t_{3,4}} = Y_{,3} \quad (38)$$

$$(39)$$

$$AY_{,3} - Y_{,3}t_{3,3} - Y_{,4}t_{4,3} = D_{,3} + K \quad (40)$$

$$AY_{,4} - Y_{,3}t_{3,4} - Y_{,4}t_{4,4} = D_{,4} + S \quad (41)$$

$$(42)$$

$$AY_{,2} - Y_{,1}t_{1,2} - Y_{,2}t_{2,2} - Y_{,3}t_{3,2} = D_2 \quad (43)$$

$$AY_{,3} - Y_{,1}t_{1,3} - Y_{,2}t_{2,3} - Y_{,3}t_{3,3} = D_3 \quad (44)$$

$$(A - t_{2,2}I)Y_{,2} - Y_{,1}t_{1,2} - Y_{,3}t_{3,2} = D_2 \quad (45)$$

$$AY_{,3} - Y_{,1}t_{1,3} - Y_{,2}t_{2,3} - Y_{,3}t_{3,3} = D_3 \quad (46)$$

$$(A - t_{2,2}I)Y_{,2} - Y_{,1}t_{1,2} - D_2 = Y_{,3}t_{3,2} \quad (47)$$

$$AY_{,3} - Y_{,1}t_{1,3} - Y_{,2}t_{2,3} - Y_{,3}t_{3,3} = D_3 \quad (48)$$

$$Y_{,3} = \frac{(A - t_{2,2}I)Y_{,2} - Y_{,1}t_{1,2} - D_2}{t_{3,2}} \quad (49)$$

$$AY_{,3} - Y_{,1}t_{1,3} - Y_{,2}t_{2,3} - Y_{,3}t_{3,3} = D_3 \quad (50)$$

$$Y_{,3} = \frac{(A - t_{2,2}I)Y_{,2}}{t_{3,2}} - \frac{Y_{,1}t_{1,2}}{t_{3,2}} - \frac{D_2}{t_{3,2}} \quad (51)$$

$$Y_{,3} = KY_{,2} - S \quad (52)$$

$$K = \frac{(A - t_{2,2}I)}{t_{3,2}} \quad (53)$$

$$S = \frac{Y_{,1}t_{1,2}}{t_{3,2}} - \frac{D_2}{t_{3,2}} \quad (54)$$

$$(55)$$

$$AY_{,3} - Y_{,1}t_{1,3} - Y_{,2}t_{2,3} - Y_{,3}t_{3,3} = D_3 \quad (56)$$

$$A(KY_{,2} - S) - Y_{,1}t_{1,3} - Y_{,2}t_{2,3} - (KY_{,2} - S)t_{3,3} = D_3 \quad (57)$$

$$AKY_{,2} - AS - Y_{,1}t_{1,3} - Y_{,2}t_{2,3} - KY_{,2}t_{3,3} - St_{3,3} = D_3 \quad (58)$$

$$(AK - Kt_{3,3} - t_{1,3}I)Y_{,2} - AS - Y_{,1}t_{1,3} - St_{3,3} = D_3 \quad (59)$$

$$(AK - Kt_{3,3} - t_{1,3}I)Y_{,2} = D_3 + AS + Y_{,1}t_{1,3} + St_{3,3} \quad (60)$$

$$(61)$$