Međusektorska analiza

Matematika za ekonomiste 1

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Sadržaj

prvi zadatak

drugi zadatak

treći zadatak

četvrti zadatak

• Matrica tehničkih koeficijenata

$$A = [a_{ij}], \qquad a_{ij} = \frac{X_{ij}}{X_i}$$

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• Matrica tehnologije

$$T = I - A$$

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Strukturni oblik input-output modela

$$(I-A)X=Y$$

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vektor ukupne proizvodnje

$$X = \begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_n \end{bmatrix}$$

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$$(I-A)X=Y$$

vektor ukupne proizvodnje

$$X = \begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_n \end{bmatrix}$$

vektor finalne potražnje

$$Y = \begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_n \end{bmatrix}$$

prvi zadatak

Zadatak 1

Zadana je input-output tablica dvosektorskog modela ekonomije.

		X_{ij}	V.	Xi
	1	2	1;	λ_i
1	220	540	340	1100
2	330	202.5	817.5	1350

- a) Odredite matricu tehničkih koeficijenata.
- b) Odredite matricu tehnologije.
- c) Odredite matricu multiplikator.
- d) Odredite novu ukupnu proizvodnju ako je nova finalna potražnja Y=(388,888).
- e) Napravite novu međusektorsku tablicu na temelju nove finalne potražnje.

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

	X_{ij}		V.	X_i
	1	2	11	Λ;
1	220	540	340	1100
2	330	202.5	817.5	1350

$$a_{11} = \frac{X_{11}}{X_{11}}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

	X_{ij}		V.	X_i
	1	2	11	, Ai
1	220	540	340	1100
2	330	202.5	817.5	1350

$$a_{11} = \frac{X_{11}}{X_1} = ---$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

		X_{ij}	Y_i	X_i
	1	2	''	\mathcal{N}_i
1	220	540	340	1100
2	330	202.5	817.5	1350

$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{X_1}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

	,	X_{ij}	Y_i	X_i
	1	2	''	Λ _i
1	220	540	340	1100
2	330	202.5	817.5	1350

$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

	,	X_{ij}	V.	X_i
	1	2	' i	Λ _i
1	220	540	340	1100
2	330	202.5	817.5	1350

$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

	X_{ij}		V.	X_i
	1	2	<i>' i</i>	λ_i
1	220	540	340	1100
2	330	202.5	817.5	1350

$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

$$a_{12} = \frac{X_{12}}{X_2}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

	,	X_{ij}	V.	X:
	1	2	<i>' i</i>	λ_i
1	220	540	340	1100
2	330	202.5	817.5	1350

$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

$$a_{12} = \frac{X_{12}}{X_2} = ---$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

		X_{ij}	V.	X_i
	1	2	Yi	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
1	220	540	340	1100
2	330	202.5	817.5	1350

$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

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$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

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$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

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$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$
$$a_{21} = \frac{X_{21}}{X_1}$$

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$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

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$$a_{21} = \frac{X_{21}}{X_1} = \frac{1}{X_1}$$

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$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$
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$$A = egin{bmatrix} a_{11} & a_{12} \ a_{21} & a_{22} \end{bmatrix}$$

	X_{ij}		Y_i	X_i
	1	2	''	λ_i
1	220	540	340	1100
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$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$
$$a_{21} = \frac{X_{21}}{X_1} = \frac{330}{1100} = \frac{3}{10}$$

$$a_{12} = \frac{X_{12}}{X_2} = \frac{540}{1350} = \frac{2}{5}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

	X _{ij}		Yi	Υ.
	1	2	' '	Λ _i
1	220	540	340	1100
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$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

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$$a_{12} = \frac{X_{12}}{X_2} = \frac{540}{1350} = \frac{2}{5}$$
$$a_{22} = \frac{X_{22}}{X_2}$$

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$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

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$$a_{12} = \frac{X_{12}}{X_2} = \frac{540}{1350} = \frac{2}{5}$$
$$a_{22} = \frac{X_{22}}{X_2} = ---$$

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$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

	X_{ij}		Y_i	<i>X</i> :
	1	2	''	λ_i
1	220	540	340	1100
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$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

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$$a_{12} = \frac{X_{12}}{X_2} = \frac{540}{1350} = \frac{2}{5}$$
$$a_{22} = \frac{X_{22}}{X_2} = \frac{202.5}{3}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

	X_{ij}		V.	X_i
	1	2	1 i	, Ai
1	220	540	340	1100
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$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

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$$\frac{202.5}{1350}$$
 =

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$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$\frac{202.5}{1350} = \frac{202.5 \cdot 10}{1350 \cdot 10}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

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$$a_{12} = \frac{X_{12}}{X_2} = \frac{540}{1350} = \frac{2}{5}$$
$$a_{22} = \frac{X_{22}}{X_2} = \frac{202.5}{1350}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$\frac{202.5}{1350} = \frac{202.5 \cdot 10}{1350 \cdot 10} = \frac{2025}{13500}$$

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$$a_{12} = \frac{X_{12}}{X_2} = \frac{540}{1350} = \frac{2}{5}$$
$$a_{22} = \frac{X_{22}}{X_2} = \frac{202.5}{1350}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$\frac{202.5}{1350} = \frac{202.5 \cdot 10}{1350 \cdot 10} = \frac{2025}{13500} = \frac{3}{20}$$

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$$

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$$\frac{202.5}{1350} = \frac{202.5 \cdot 10}{1350 \cdot 10} = \frac{2025}{13500} = \frac{3}{20}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

Rješenje

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix} \qquad A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$a_{11} = \frac{X_{11}}{X_1} = \frac{220}{1100} = \frac{1}{5}$$

$$a_{21} = \frac{X_{21}}{X_1} = \frac{330}{1100} = \frac{3}{10}$$

$$a_{12} = \frac{X_{12}}{X_2} = \frac{540}{1350} = \frac{2}{5}$$

$$a_{22} = \frac{X_{22}}{X_2} = \frac{202.5}{1350} = \frac{3}{20}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$\frac{202.5}{1350} = \frac{202.5 \cdot 10}{1350 \cdot 10} = \frac{2025}{13500} = \frac{3}{20}$$

$$T = I - A$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} -$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} \\ \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} & -\frac{2}{5} \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} & -\frac{2}{5} \\ -\frac{3}{10} & \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} & -\frac{2}{5} \\ -\frac{3}{10} & \frac{17}{20} \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} & -\frac{2}{5} \\ -\frac{3}{10} & \frac{17}{20} \end{bmatrix}$$

$$T =$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} & -\frac{2}{5} \\ -\frac{3}{10} & \frac{17}{20} \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} & -\frac{2}{5} \\ -\frac{3}{10} & \frac{17}{20} \end{bmatrix}$$

$$T = \frac{1}{20} \left[\begin{array}{c} 16 \\ \end{array} \right]$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} & -\frac{2}{5} \\ -\frac{3}{10} & \frac{17}{20} \end{bmatrix}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} & -\frac{2}{5} \\ -\frac{3}{10} & \frac{17}{20} \end{bmatrix}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix} = \begin{bmatrix} \frac{4}{5} & -\frac{2}{5} \\ -\frac{3}{10} & \frac{17}{20} \end{bmatrix}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M =$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M =$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M=20\cdot\frac{1}{16\cdot 17}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{vmatrix} 16 & -8 \\ -6 & 17 \end{vmatrix}^{-1}$$

$$M = 20 \cdot \frac{1}{16 \cdot 17 -}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot \frac{1}{16 \cdot 17 - (-6) \cdot (-8)}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot \frac{1}{16 \cdot 17 - (-6) \cdot (-8)}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot \frac{1}{16 \cdot 17 - (-6) \cdot (-8)} \begin{vmatrix} 17 \\ \end{vmatrix}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot \frac{1}{16 \cdot 17 - (-6) \cdot (-8)} \begin{bmatrix} 17 \\ 16 \end{bmatrix}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot \frac{1}{16 \cdot 17 - (-6) \cdot (-8)} \begin{bmatrix} 17 \\ 6 & 16 \end{bmatrix}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot \frac{1}{16 \cdot 17 - (-6) \cdot (-8)} \begin{vmatrix} 17 & 8 \\ 6 & 16 \end{vmatrix}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot \frac{1}{16 \cdot 17 - (-6) \cdot (-8)} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix}$$

$$M = 20 \cdot \frac{1}{224} \begin{vmatrix} 17 & 8 \\ 6 & 16 \end{vmatrix}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$

$$M = (I - A)^{-1} = T^{-1}$$

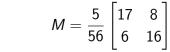
$$M = (I - A)^{-1} = T^{-1}$$

$$M = \left(\frac{1}{20}\right)^{-1} \begin{bmatrix} 16 & -8\\ -6 & 17 \end{bmatrix}^{-1}$$

$$M = 20 \cdot \frac{1}{16 \cdot 17 - (-6) \cdot (-8)} \begin{vmatrix} 17 & 8 \\ 6 & 16 \end{vmatrix}$$

$$M = 20 \cdot \frac{1}{224} \begin{vmatrix} 17 & 8 \\ 6 & 16 \end{vmatrix}$$

$$T = \frac{1}{20} \begin{bmatrix} 16 & -8 \\ -6 & 17 \end{bmatrix}$$



d)

$$(I-A)X=Y$$

d)
$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

d)
$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X =$$

d)
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix}$$

d)
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

d)
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$X =$$

d)
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

d)
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$X = \frac{5}{56} \begin{bmatrix} 13700 \\ \end{bmatrix}$$

d)
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

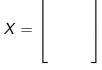
$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$X = \frac{5}{56} \begin{bmatrix} 13700 \\ 16536 \end{bmatrix}$$

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

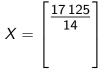
$$X = \frac{5}{56} \begin{bmatrix} 13700 \\ 16536 \end{bmatrix}$$



$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

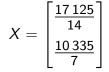
$$X = \frac{5}{56} \begin{bmatrix} 13700 \\ 16536 \end{bmatrix}$$



$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$X = \frac{5}{56} \begin{bmatrix} 13700 \\ 16536 \end{bmatrix}$$



d)
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$X = \frac{5}{56} \begin{bmatrix} 13700 \\ 16536 \end{bmatrix}$$

$$X = \begin{bmatrix} 13700 \\ 16536 \end{bmatrix}$$

$$X = \begin{bmatrix} 13700 \\ 16536 \end{bmatrix}$$

d)
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$X = \frac{5}{56} \begin{bmatrix} 13700 \\ 16536 \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \end{bmatrix}$$

d)
$$(I - A)X = Y$$

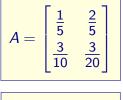
$$X = (I - A)^{-1}Y$$

$$X = \frac{5}{56} \begin{bmatrix} 17 & 8 \\ 6 & 16 \end{bmatrix} \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$X = \frac{5}{56} \begin{bmatrix} 13700 \\ 16536 \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

e) X_{ij} Y_i X_i



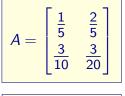
$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

 $a_{ij} = \frac{X_{ij}}{X_j}$

2

X_{ij}		V.	Υ.
1	2	11	λ_i
		388	
		888	

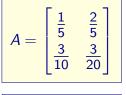


$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

 $a_{ij} = \frac{X_{ij}}{X_j}$

X_{ij}		V.	Υ.
1	2	11	λ_i
		388	1223.21
		888	1476.43



$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

 $a_{ij} = \frac{X_{ij}}{X_j}$

e)
$$X_{ij}$$
 Y_i X_i 1 2 388 1223.21

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$\left| \frac{\lambda_{ij}}{X_j} \right| \left| X_{ij} = a_{ij} X_j \right|$$

 $X_{11} =$

$$X_{11} = a_{11}X_1$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$\left| \frac{X_{ij}}{X_j} \right| \left| X_{ij} = a_{ij}X_j \right|$$

$$X_{11}=a_{11}X_1=\frac{1}{5}$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$\left| \frac{X_{ij}}{X_j} \right| \left| X_{ij} = a_{ij}X_j \right|$$

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$X_{ij} = a_{ij}X_{j}$$

e)
$$\begin{array}{|c|c|c|c|c|c|c|c|}\hline X_{ij} & Y_i & X_i \\\hline 1 & 2 & Y_i & X_i \\\hline 2 & 388 & 1223.21 \\2 & 888 & 1476.43 \\\hline \end{array}$$

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

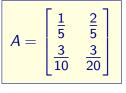
$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$\left| \frac{\lambda_{ij}}{X_j} \right| \left| X_{ij} = a_{ij}X_j \right|$$

	X_{ij}		V.	Χ.
	1	2	1 1	Λį
1	244.64		388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$



$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

	Χ	X_{ij}		Υ.
	1	2	1 1	λ_i
1	244.64		388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} =$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

	Χ	X_{ij}		Υ.
	1	2	1 1	λ_i
1	244.64		388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad X_{ij} = a_{ij}X_j$$

	Χ	X_{ij}		Υ.
	1	2	1 1	λ_i
1	244.64		388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12}=a_{12}X_2=\frac{2}{5}$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

	Χ	X_{ij}		Χ.
	1	2	1 1	λ_i
1	244.64		388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

	Χ	X_{ij}		Χ.
	1	2	1 1	λ_i
1	244.64		388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

	X	X_{ij}		Χ.
	1	2	1 ;	Λį
1	244.64	590.57	388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

	Χ	X_{ij}		Χ.
	1	2	1 ;	λ_i
1	244.64	590.57	388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} =$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

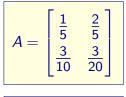
$$a_{ij} = \frac{X_{ij}}{X_j} \qquad X_{ij} = a_{ij}X_j$$

	Χ	X_{ij}		Χ.
	1	2	1 ;	λ_i
1	244.64	590.57	388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1$$



$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

	Χ	X_{ij}		Υ.
	1	2	1 1	λ_i
1	244.64	590.57	388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21}=a_{21}X_1=\frac{3}{10}$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

	X _{ij}		V.	Υ.
	1	2	1 1	λ_i
1	244.64	590.57	388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1 = \frac{3}{10} \cdot 1223.21$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

	X _{ij}		V.	Υ.
	1	2	1;	λ_i
1	244.64	590.57	388	1223.21
2			888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1 = \frac{3}{10} \cdot 1223.21 = 366.963$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

	X_{ij}		V.	Υ.
	1	2	1 1	X _i
1	244.64	590.57	388	1223.21
2	366.96		888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1 = \frac{3}{10} \cdot 1223.21 = 366.963 \approx 366.96$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i}$$

 $a_{ij} = \frac{X_{ij}}{X_i} \qquad \boxed{X_{ij} = a_{ij}X_j}$

	X_{ij}		Y_i	Υ.
	1	2	1 ;	λ_i
	244.64	590.57	388	1223.21
2	366.96		888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1 = \frac{3}{10} \cdot 1223.21 = 366.963 \approx 366.96$$

$$X_{22} =$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

 $A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

X_{ij}		Y_i	Υ.
1	2	1 ;	λ_i
244.64	590.57	388	1223.21
366.96		888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1 = \frac{3}{10} \cdot 1223.21 = 366.963 \approx 366.96$$

$$X_{22} = a_{22}X_2$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

X_{ij}		V.	Υ.
1	2	1 ;	λ_i
244.64	590.57	388	1223.21
366.96		888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1 = \frac{3}{10} \cdot 1223.21 = 366.963 \approx 366.96$$

$$X_{22}=a_{22}X_2=\frac{3}{20}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{ij}=a_{ij}X_j$$

 $A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

X_{ij}		V.	Xi
1	2	1;	λ_i
244.64	590.57	388	1223.21
366.96		888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1 = \frac{3}{10} \cdot 1223.21 = 366.963 \approx 366.96$$

$$X_{22} = a_{22}X_2 = \frac{3}{20} \cdot 1476.43$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

	X_{ij}		V.	X_i
	1	2	<i>I</i> i	λ_i
	244.64	590.57	388	1223.21
1	366.96		888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1 = \frac{3}{10} \cdot 1223.21 = 366.963 \approx 366.96$$

$$X_{22} = a_{22}X_2 = \frac{3}{20} \cdot 1476.43 = 221.4645$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad X_{ij} = a_{ij}X_j$$

$$X_{ij}=a_{ij}X_j$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

X_{ij}		V.	X_i
1	2	<i>'</i> i	λ_i
244.64	590.57	388	1223.21
366.96	221.46	888	1476.43

$$X_{11} = a_{11}X_1 = \frac{1}{5} \cdot 1223.21 = 244.642 \approx 244.64$$

$$X_{12} = a_{12}X_2 = \frac{2}{5} \cdot 1476.43 = 590.572 \approx 590.57$$

$$X_{21} = a_{21}X_1 = \frac{3}{10} \cdot 1223.21 = 366.963 \approx 366.96$$

$$X_{22} = a_{22}X_2 = \frac{3}{20} \cdot 1476.43 = 221.4645 \approx 221.46$$

$$A = \begin{bmatrix} \frac{1}{5} & \frac{2}{5} \\ \frac{3}{10} & \frac{3}{20} \end{bmatrix}$$

$$X = \begin{bmatrix} 1223.21 \\ 1476.43 \end{bmatrix}$$

$$Y = \begin{bmatrix} 388 \\ 888 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

drugi zadatak

Zadatak 2

Zadana je matrica tehnologije

$$\begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}.$$

a) Odredite matricu tehničkih koeficijenata i matricu finalne potražnje ako je zadana matrica ukupnog outputa pojedinog sektora

- b) Napravite pripadnu input-output tablicu.
- c) Napravite novu međusektorsku tablicu tako da finalna potražnja bude vektor (800, 350, 400).

a) Matrica tehnologije

a) Matrica tehnologije

$$T = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

a) Matrica tehnologije

$$T = egin{bmatrix} 1 & 0 & -0.5 \ -0.1 & 1 & 0 \ -0.2 & -0.5 & 1 \end{bmatrix}$$

a) Matrica tehnologije T = I - A

$$T = egin{bmatrix} 1 & 0 & -0.5 \ -0.1 & 1 & 0 \ -0.2 & -0.5 & 1 \end{bmatrix}$$

a) Matrica tehnologije T = I - A

$$T = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

$$A = I - T$$

a) Matrica tehnologije T = I - A

$$T = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

$$A = I - T = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

a) Matrica tehnologije T = I - A

$$T = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

$$A = I - T = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} -$$

a) Matrica tehnologije T = I - A

$$T = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

$$A = I - T = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

a) Matrica tehnologije T = I - A

$$T = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

$$A = I - T = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 \\ -0.1 & 0 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

a) Matrica tehnologije T = I - A

$$T = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

$$A = I - T = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0.5 \\ \end{bmatrix}$$

a) Matrica tehnologije T = I - A

$$T = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

$$A = I - T = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \end{bmatrix}$$

a) Matrica tehnologije T = I - A

$$T = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

$$A = I - T = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

|(I-A)X=Y|

Matrica finalne potražnje

$$(I-A)X=Y$$

Matrica finalne potražnje Y = (I - A)X

$$|(I-A)X=Y|$$

$$\underbrace{\text{Matrica finalne potražnje}}_{Y = (I - A)X$$

$$(I-A)X=Y$$

$$\underbrace{\text{Matrica finalne potražnje}}_{Y = (I - A)X$$

$$Y =$$

$$(I-A)X=Y$$

$$Y = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

$$(I-A)X=Y$$

$$Y = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$(I-A)X=Y$$

$$Y = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$Y =$$

$$(I-A)X=Y$$

$$Y = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$Y = \begin{bmatrix} 540 \\ \end{bmatrix}$$

$$(I-A)X=Y$$

$$Y = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$Y = \begin{vmatrix} 540 \\ 265 \end{vmatrix}$$

$$(I-A)X=Y$$

$$Y = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

 X_{ij}
 Y_i
 X_i

 1
 2
 3

 2
 3
 3

b)

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

b) X_{ij} X_i

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{11}=a_{11}X_1$$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{11}=a_{11}X_1=0\cdot 750$$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$$

 $X_{12} = a_{12}X_2$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \quad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$$

$$X_{12}=a_{12}X_2=0\cdot 340$$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$$

 $X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$$

 $X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$
 $X_{13} = a_{13}X_3$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$$

 $X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$
 $X_{13} = a_{13}X_3 = 0.5 \cdot 420$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i}$$

$$X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$$

 $X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$
 $X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i}$$

$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$

$$X_{21} = a_{21}X_1$$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$

$$X_{21} = a_{21}X_1 = 0.1 \cdot 750$$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i}$$

$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$
 $X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i}$$

$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$
 $X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$
 $X_{22} = a_{22}X_2$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

 $X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$
 $X_{22} = a_{22}X_2 = 0 \cdot 340$

 $X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$ $X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

 $X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$
 $X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$

 $X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$ $X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$$

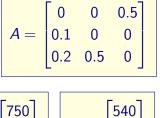
$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

$$X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$$

$$X_{23} = a_{23}X_3$$



$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

$$X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$$

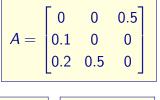
$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

$$X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$$

$$X_{23} = a_{23}X_3 = 0 \cdot 420$$



$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

$$X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$$

$$X_{23} = a_{23}X_3 = 0 \cdot 420 = 0$$

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

 $X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$

 $X_{11} = a_{11}X_1 = 0 \cdot 750 = 0$ $X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$

$$X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$$

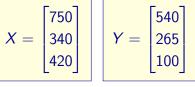
$$X_{23} = a_{23}X_3 = 0 \cdot 420 = 0$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

 $A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

 $X_{31} = a_{31}X_1$



$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$

$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

 $X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$

$$340 = 0$$

$$0.420 =$$

$$X_{23} = a_{23}X_3 = 0 \cdot 420 = 0$$

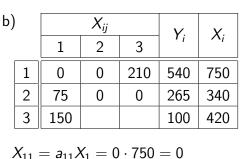
$$a_{ij} = \frac{X_{ij}}{X_j}$$

$$X_{ij} = a_{ij}X_j$$

 $A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$

 $X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \quad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$

 $X_{31} = a_{31}X_1 = 0.2 \cdot 750$



$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

 $X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$

 $X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$

$$X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$$

$$X_{23}=a_{23}X_3=0\cdot 420=0$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$



$$X_{31} = a_{31}X_1 = 0.2 \cdot 750 = 150$$

$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$

$$\lambda_{13} - a_{13}\lambda_3 = 0.5 \cdot 420 = 210$$

$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

$$X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$$

$$X_{22} = a_{22}X_2 = 0.420 =$$

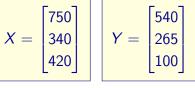
$$X_{23}=a_{23}X_3=0\cdot 420=0$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

 $A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$

 $X_{32} = a_{32}X_2$



$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$

$$\lambda_{13} = a_{13}\lambda_3 = 0.5 \cdot 420 = 210$$

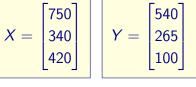
$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

$$X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$$

$$X_{23} = a_{23}X_3 = 0 \cdot 420 = 0$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$



$$X_{31} = a_{31}X_1 = 0.2 \cdot 750 = 150$$

 $X_{32} = a_{32}X_2 = 0.5 \cdot 340$

$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$

$$\lambda_{13} = a_{13}\lambda_3 = 0.5 \cdot 420 = 21$$

$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

$$X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$$

$$Y = 2 Y = 0.420 = 0$$

$$X_{23} = a_{23}X_3 = 0 \cdot 420 = 0$$

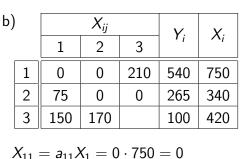
$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

 $X_{31} = a_{31}X_1 = 0.2 \cdot 750 = 150$ $X_{32} = a_{32}X_2 = 0.5 \cdot 340 = 170$

$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

 $A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$

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$$X_{12} = a_{12}X_2 = 0.340 = 0$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

$$Y = 2 Y = 0.340 = 0$$

$$X_{22}=a_{22}X_2=0\cdot 340=0$$

$$X_{23} = a_{23}X_3 = 0 \cdot 420 = 0$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

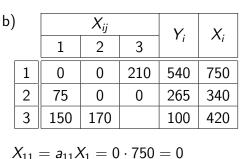
$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$



$$X_{31} = a_{31}X_1 = 0.2 \cdot 750 = 150$$

$$X_{32} = a_{32}X_2 = 0.5 \cdot 340 = 170$$

 $X_{33} = a_{33}X_3$



$$X_{12} = a_{12}X_2 = 0 \cdot 340 = 0$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

$$X_{22} = a_{22}X_2 = 0 \cdot 340 = 0$$

$$X_{23} = a_{23}X_3 = 0 \cdot 420 = 0$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

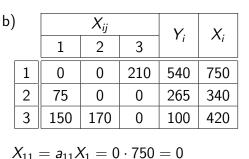
$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix} \qquad Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$Y = \begin{bmatrix} 540 \\ 265 \\ 100 \end{bmatrix}$$

$$X_{31} = a_{31}X_1 = 0.2 \cdot 750 = 150$$

$$X_{32} = a_{32}X_2 = 0.5 \cdot 340 = 170$$

$$X_{33} = a_{33}X_3 = 0.420$$



$$X_{12} = a_{12}X_2 = 0.340 = 0$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 420 = 210$$

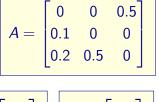
$$X_{21} = a_{21}X_1 = 0.1 \cdot 750 = 75$$

$$Y = 2 Y = 0.340 = 0$$

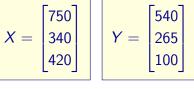
$$X_{22}=a_{22}X_2=0\cdot 340=0$$

$$X_{23} = a_{23}X_3 = 0 \cdot 420 = 0$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$



$$X = \begin{bmatrix} 750 \\ 340 \\ 420 \end{bmatrix}$$



$$X_{31} = a_{31}X_1 = 0.2 \cdot 750 = 150$$

 $X_{32} = a_{32}X_2 = 0.5 \cdot 340 = 170$

$$X_{33} = a_{33}X_3 = 0.420 = 0$$

$$=a_{ij}\lambda$$

(I-A)X=Y

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$-A)X =$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$

$$(I-A)X=Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 0.5 & 0.5 \\ 0.2 & 0.5 & 0.5 \end{bmatrix}$$

$$(-A)X = Y$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ & & & \end{bmatrix}$$

$$(A)X = Y$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I-A=rac{1}{10}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$(A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I-A=rac{1}{10}\left[egin{array}{ccc}10\end{array}
ight]$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$(A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 \\ & & \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$(A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$(A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & & \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$(-A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$(-A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$(-A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & & \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$(A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$(A)X = Y$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$(I - A)^{-1} =$$

Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$\begin{bmatrix} 0 & -0.5 \end{bmatrix} \begin{bmatrix} 1 & 0 \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$(I-A)^{-1} = \left(\frac{1}{10}\right)^{-1}$$

c) Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

c) Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A - \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \end{bmatrix} - \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{2} & 1 & 0 \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$(I - A)^{-1} = \left(\frac{1}{10}\right)^{-1} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}^{-1} = 10$$

c) Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$(I-A)^{-1} = \left(\frac{1}{10}\right)^{-1} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}^{-1} = 10B^{-1}$$

c) Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \end{bmatrix}$$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \quad B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \quad B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$(I - A)^{-1} = \left(\frac{1}{10}\right)^{-1} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}^{-1} = 10B^{-1}$$

c) Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$\begin{vmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{vmatrix} = \begin{bmatrix} 10 & 0 & -5 \end{bmatrix}$$

 $\begin{vmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{vmatrix} = \begin{vmatrix} 1 & 0 & 0 & -5 \\ -1 & 10 & 0 & 0 \\ -2 & -5 & 10 \end{vmatrix} = \begin{vmatrix} 1 & 0 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{vmatrix} = \begin{vmatrix} 1 & 0 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{vmatrix}$ $B^{-1} = \frac{1}{\det B} \cdot B^*$ $(I - A)^{-1} = \left(\frac{1}{10}\right)^{-1} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}^{-1} = 10B^{-1}$

$$(I - A)^{-1} = \left(\frac{1}{10}\right) \quad \begin{bmatrix} -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} = 10B^{-1}$$

c) Matrica multiplikator
$$M = (I - A)^{-1} = T^{-1}$$
 $(I - A)X = Y$

$$T = I - A = \begin{bmatrix} 1 & 0 & -0.5 \\ -0.1 & 1 & 0 \\ -0.2 & -0.5 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -\frac{1}{2} \\ -\frac{1}{10} & 1 & 0 \\ -\frac{1}{5} & -\frac{1}{2} & 1 \end{bmatrix}$$

$$\begin{vmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{vmatrix} = 875$$

$$I - A = \frac{1}{10} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \quad B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

 $\frac{\det \overline{B} \cdot B}{(I - A)^{-1}} = \left(\frac{1}{10}\right)^{-1} \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}^{-1} = 10B^{-1}$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} =$$

$$B = \begin{bmatrix} 3 & 5 \\ -1 & 10 & 0 \\ 2 & -5 & 10 \end{bmatrix} A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix}$$

$$B = \begin{bmatrix} 1 & 0 & 5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \quad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} =$$

$$B = \begin{bmatrix} 10 & 5 \\ -1 & 0 \\ -2 & 5 & 10 \end{bmatrix} A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix}$$

$$B = \begin{bmatrix} 10 & 5 \\ -1 & 0 \\ -2 & 5 & 10 \end{bmatrix}$$

$$A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \quad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} =$$

$$B = \begin{bmatrix} 10 & 0 & 5 \\ -1 & 10 & \\ -2 & -5 & 1 \end{bmatrix}$$

$$A_{ij} = (-1)^{i+j} M_{ij}$$

$$A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix}$$

$$B = \begin{bmatrix} 10 & 0 & 5 \\ -1 & 10 & 0 \\ -2 & -5 & 1 \end{bmatrix}$$

$$A_{ij} = (-1)^{i+j} M_{ij}$$

$$A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \quad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} =$$

$$B = \begin{bmatrix} 1 & 0 & -5 \\ 1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix}$$

$$B = \begin{bmatrix} 0 & -5 \\ 1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{22} = \begin{bmatrix} A_{ij} = (-1)^{i+j} M_{ij} \\ A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$B = \begin{bmatrix} 10 & -5 \\ \frac{1}{2} & 0 \\ -2 & 5 & 10 \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix}$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$B = \begin{bmatrix} 10 & -5 \\ \frac{1}{2} & \frac{1}{2} & \frac{1}{2} \\ -2 & \frac{1}{2} & 10 \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100 \qquad B_{23} =$$

 $B_{23} =$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 \\ -2 & -5 & 1 \end{bmatrix}$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & \\ -2 & -5 & 1 \end{bmatrix} \begin{bmatrix} A_{ij} = (-1)^{i+j} M_{ij} \\ B_{22} = (-1)^{2+2} & 10 \\ -2 & 10 \end{bmatrix} = 90$$

 $B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix}$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

 $B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & -5 \\ -2 & -5 & 1 \end{bmatrix}$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & -5 \\ -2 & -5 & 1 \end{bmatrix} \begin{bmatrix} A_{ij} = (-1)^{i+j} M_{ij} \\ B_{22} = (-1)^{2+2} & 10 \\ -2 & 10 \end{bmatrix} = 90$$

 $B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

 $B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$
 $B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$
 $B_{31} =$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$= \begin{bmatrix} 1 & 0 & -5 \\ -1 & 10 & 0 \\ 2 & 5 & 10 \end{bmatrix}$$

$$B = \begin{bmatrix} 1 & 0 & -5 \\ 1 & 10 & 0 \\ 2 & 5 & 10 \end{bmatrix} \begin{vmatrix} A_{ij} = (-1)^{i+j} M_{ij} \\ B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$
 $B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$
 $B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix}$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$= \begin{bmatrix} 1 & 0 & -5 \\ -1 & 10 & 0 \\ 2 & 5 & 10 \end{bmatrix}$$

$$B = \begin{bmatrix} 1 & 0 & -5 \\ 1 & 10 & 0 \\ 2 & 5 & 10 \end{bmatrix} \begin{vmatrix} A_{ij} = (-1)^{i+j} M_{ij} \\ B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$
 $B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

10
$$B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix} = 50$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$
 $B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$
 $B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix} = 50$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$
 $B_{32} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$

$$B_{21} = (-1)^{2+1} egin{array}{cc} 0 & -5 \ -5 & 10 \ \end{array} = 25$$

$$3 = \begin{bmatrix} 10 & -1 \\ -1 & 0 \\ \frac{2}{2} & 10 \end{bmatrix}$$

$$B = \begin{bmatrix} 10 & -5 \\ -1 & 0 \\ \hline 2 & 10 \end{bmatrix} \qquad \begin{bmatrix} A_{ij} = (-1)^{i+j} M_{ij} \\ B_{22} = (-1)^{2+2} & 10 \\ -2 & 10 \end{bmatrix} = 90$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

$$B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$$

 $B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix} = 50$

$$B_{32} = (-1)^{3+2} \begin{vmatrix} 10 & -5 \\ -1 & 0 \end{vmatrix}$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

 $B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$

$$3 = \begin{bmatrix} 10 & -1 \\ -1 & 0 \\ \frac{2}{3} & 10 \end{bmatrix}$$

$$B = \begin{bmatrix} 10 & -5 \\ -1 & 0 \\ \hline 2 & 10 \end{bmatrix} \qquad \begin{bmatrix} A_{ij} = (-1)^{i+j} M_{ij} \\ B_{22} = (-1)^{2+2} & 10 \\ -2 & 10 \end{bmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -5 & 10 \end{vmatrix} = 10$$

$$B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$

 $B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$

$$B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix} = 50$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$

$$B_{32} = (-1)^{3+2} \begin{vmatrix} 10 & -5 \\ -1 & 0 \end{vmatrix} = 5$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$$
 $B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$$
 $B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix} = 50$

$$\begin{vmatrix} -2 & 10 \end{vmatrix} = 25 \qquad B_{32} = (-1)^{3+2} \begin{vmatrix} 10 & -5 \\ -1 & 0 \end{vmatrix} = 5$$

$$B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$$
 $B_{33} =$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & \\ \hline 2 & 5 & \end{bmatrix} \begin{bmatrix} A_{ij} = (-1)^{i+j} M_{ij} \\ B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

 $B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$

 $B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$

 $B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$

 $B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100$

 $B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$

 $B_{33} = (-1)^{3+3} \begin{vmatrix} 10 & 0 \\ -1 & 10 \end{vmatrix}$

 $B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix} = 50$

 $B_{32} = (-1)^{3+2} \begin{vmatrix} 10 & -5 \\ -1 & 0 \end{vmatrix} = 5$

$$B = \begin{bmatrix} 10 & 0 & & & \\ -1 & 10 & & & \\ & 2 & 5 & & \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100 \qquad B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$$

 $B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10$

 $B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$

 $B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$

$$\begin{vmatrix} 10 & 0 \\ B_{32} = (-1)^{3+2} \begin{vmatrix} 10 & -5 \\ -1 & 0 \end{vmatrix} = 5$$

$$B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix} = 50$$

$$B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$$

$$B_{23} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ -50 \end{vmatrix} = 50$$

$$\begin{vmatrix} 5 \\ = 5 \end{vmatrix}$$

$$B_{33} = (-1)^{3+3} \begin{vmatrix} 10 & 0 \\ -1 & 10 \end{vmatrix} = 100$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad A_{ij} = (-1)^{i+j} M_{ij}$$

$$B_{22} = (-1)^{2+2} \begin{vmatrix} 10 & -5 \\ -2 & 10 \end{vmatrix} = 90$$

$$B_{11} = (-1)^{1+1} \begin{vmatrix} 10 & 0 \\ -5 & 10 \end{vmatrix} = 100 \qquad B_{23} = (-1)^{2+3} \begin{vmatrix} 10 & 0 \\ -2 & -5 \end{vmatrix} = 50$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10 \qquad B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix} = 50$$

$$B_{12} = (-1)^{1+2} \begin{vmatrix} -1 & 0 \\ -2 & 10 \end{vmatrix} = 10 \qquad B_{31} = (-1)^{3+1} \begin{vmatrix} 0 & -5 \\ 10 & 0 \end{vmatrix} = 50$$

$$B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25 \qquad B_{32} = (-1)^{3+2} \begin{vmatrix} 10 & -5 \\ -1 & 0 \end{vmatrix} = 5$$

 $B_{13} = (-1)^{1+3} \begin{vmatrix} -1 & 10 \\ -2 & -5 \end{vmatrix} = 25$ $B_{32} = (-1)^{3+2} \begin{vmatrix} 10 & -5 \\ -1 & 0 \end{vmatrix} = 5$

 $B_{33} = (-1)^{3+3} \begin{vmatrix} 10 & 0 \\ -1 & 10 \end{vmatrix} = 100$ $B_{21} = (-1)^{2+1} \begin{vmatrix} 0 & -5 \\ -5 & 10 \end{vmatrix} = 25$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$

$$B^{-1} =$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

 $B_{31} = 50$, $B_{32} = 5$, $B_{33} = 100$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

$$B^{-1} = \frac{1}{875}$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = egin{bmatrix} 10 & 0 & -5 \ -1 & 10 & 0 \ -2 & -5 & 10 \end{bmatrix}$$

 $B = \begin{vmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{vmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$ $B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$ $B_{31} = 50$, $B_{32} = 5$, $B_{33} = 100$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix}$$

 $B = \begin{vmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{vmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$ $B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$ $B_{31} = 50$, $B_{32} = 5$, $B_{33} = 100$

$$B^{-1} = \frac{1}{875} \left| \begin{array}{c} 100 \\ \end{array} \right|$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 \\ & & & \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ & & & \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & & & \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{vmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \end{vmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & & \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}'$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}' = \frac{1}{875} \begin{bmatrix} \\ \\ \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}^{T} = \frac{1}{875} \begin{bmatrix} 100 \\ 10 \\ 25 \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}' = \frac{1}{875} \begin{bmatrix} 100 & 25 \\ 10 & 90 \\ 25 & 50 \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
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$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}' = \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}' = \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$

$$(I - A)^{-1} = 10B^{-1}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$
$$\det B = 875$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}' = \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$

$$(I - A)^{-1} = 10B^{-1} = 10$$
.

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$
$$\det B = 875$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}' = \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$

$$(I-A)^{-1} = 10B^{-1} = 10 \cdot \frac{1}{875}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$
$$\det B = 875$$

 $B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}' = \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$

$$(I - A)^{-1} = 10B^{-1} = 10 \cdot \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$
$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$
$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$
$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$
$$\det B = 875$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}' = \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$
$$(I - A)^{-1} = 10B^{-1} = 10 \cdot \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} = \frac{2}{175}$$
$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$B^{-1} = \frac{1}{\det B} \cdot B$$

$$B = \begin{bmatrix} 10 & 0 & -5 \\ -1 & 10 & 0 \\ -2 & -5 & 10 \end{bmatrix} \qquad B_{11} = 100, \quad B_{12} = 10, \quad B_{13} = 25$$

$$B_{21} = 25, \quad B_{22} = 90, \quad B_{23} = 50$$

$$B_{31} = 50, \quad B_{32} = 5, \quad B_{33} = 100$$

$$\det B = 875$$

$$B^{-1} = \frac{1}{875} \begin{bmatrix} 100 & 10 & 25 \\ 25 & 90 & 50 \\ 50 & 5 & 100 \end{bmatrix}' = \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$

$$(I - A)^{-1} = 10B^{-1} = 10 \cdot \frac{1}{875} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$

$$B^{-1} = \frac{1}{\det B} \cdot B^*$$

$$(I-A)X=Y$$

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X =$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

X =

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \frac{2}{175} \begin{bmatrix} 108750 \\ 0 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \frac{2}{175} \begin{bmatrix} 108750 \\ 41500 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \frac{2}{175} \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \frac{2}{175} \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \frac{2}{175} \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \frac{2}{175} \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$X = \begin{bmatrix} \frac{8700}{7} \\ \frac{3320}{7} \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \frac{2}{175} \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$X = \begin{bmatrix} \frac{8700}{7} \\ \frac{3320}{7} \\ \frac{6200}{7} \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \begin{bmatrix} \frac{8700}{7} \\ \frac{3320}{7} \\ \frac{6200}{7} \end{bmatrix}$$

$$X = \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$X = \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \begin{bmatrix} \frac{8700}{7} \\ \frac{3320}{7} \\ \frac{6200}{7} \end{bmatrix}$$

$$X = \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$X = \begin{bmatrix} 1242.86 \\ 1242.86 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \begin{bmatrix} \frac{8700}{7} \\ \frac{3320}{7} \\ \frac{6200}{7} \end{bmatrix}$$

$$X = \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$X = \begin{bmatrix} 1242.86 \\ 474.29 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \frac{2}{175} \begin{bmatrix} 100 & 25 & 50 \\ 10 & 90 & 5 \\ 25 & 50 & 100 \end{bmatrix} \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$X = \begin{bmatrix} \frac{8700}{7} \\ \frac{3320}{7} \\ \frac{6200}{7} \end{bmatrix}$$

$$X = \begin{bmatrix} 108750 \\ 41500 \\ 77500 \end{bmatrix}$$

$$X = \begin{bmatrix} 1242.86 \\ 474.29 \\ 885.71 \end{bmatrix}$$

		X_{ij}		V.	Χ.		Го	0	0.5	
	1	2	3	1 ;	λ_i	A =	0.1		0	
1							I	0.5	0	
2							L			
3								1242	2 06]	
								1242	∠.00	

 X_{ij}

 $Y = \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix} \quad X = \begin{bmatrix} 1242.86 \\ 474.29 \\ 885.71 \end{bmatrix}$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

		X_{ij}		Y_i	X_{i}		Γ0	0	0.5
	1	2	3	,,	7(1	A =		0	0
1				800			0.2	0.5	0
2				350					
3				400				Γ124	2 06]
						00 50 00	<i>X</i> =	474 885	

$$= a_{ij}X_{j}$$

 $X_{ij}=a_{ij}X_j$

 X_{ij}

 $a_{ij} = \frac{X_{ij}}{X_i}$

1 2

3

 X_{ii}

 $Y = \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix} \quad X = \begin{bmatrix} 1242.86 \\ 474.29 \\ 885.71 \end{bmatrix}$

 X_i

1242.86

474.29

 Y_i

800

350

400

3

$$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$$

		X_{ij}		Y_i	X_i		Го	0	0.5
	1	2	3	''	λ_i	A =	0.1	0	0
1				800	1242.86		0.2	0.5	0
2				350	474.29				
3				400	885.71			Γ104	م مدآ

 $X_{11} = a_{11}X_1$

 $Y = \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix} \quad X = \begin{bmatrix} 1242.86 \\ 474.29 \\ 885.71 \end{bmatrix}$

$$X_{11} = a_{11}X_1 = 0 \cdot 1242.86$$

$$Y = \begin{bmatrix} 80 \\ 35 \\ 40 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

 $X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$

 X_{ii}

$$Y = \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

$$X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$$

 $X_{12} = a_{12}X_2$





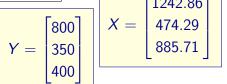
$$a_{ij} = \frac{X_{ij}}{X_i} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

		,		V.	Χ.		I 0	0	0.5	
	1	2	3	''	λ_i	A =	0.1	0	0	
1	0			800	1242.86			0.5	0	
2				350	474.29		L			
3				400	885.71			Γιοι		

$$X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$$

 $X_{12} = a_{12}X_2 = 0 \cdot 474.29$

X::



$$\left[\frac{X_{ij}}{X_i} \right] \quad \left[X_{ij} = a_{ij} X_j \right]$$

$$X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$$

 $X_{12} = a_{12}X_2 = 0 \cdot 474.29 = 0$





$$\left| \frac{X_{ij}}{X_j} \right| \left| \frac{X_{ij} = a_{ij}X_j}{X_j} \right|$$

				V.	Χ.		1 0	0	0.5	
	1	2	3	''	Λ,	A =	0.1	0	0	
1	0	0		800	1242.86			0.5	0	
2				350	474.29		_			
3				400	885.71			Γ104	م مح آ	

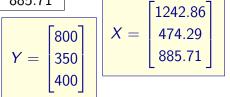
$$X_{12} = a_{12}X_2 = 0 \cdot 474.29 = 0$$

 $X_{13} = a_{13}X_3$

 $X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$

X..

$$= \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix}$$



$$\frac{X_{ij}}{X_j} \qquad X_{ij} = a_{ij} X_j$$

 X_{ii}

 $A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$

$$\frac{X_{ij}}{X_j} \qquad X_{ij} = a_{ij}X_j$$

3

 X_{ii}

 $A = \begin{bmatrix}
0 & 0 & 0.5 \\
0.1 & 0 & 0 \\
0.2 & 0.5 & 0
\end{bmatrix}$

$$X_{12} = a_{12}X_2 = 0 \cdot 474.29 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442.86$

 $Y = \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix} \quad X = \begin{bmatrix} 1242.86 \\ 474.29 \\ 885.71 \end{bmatrix}$

$$\left[\frac{X_{ij}}{X_i} \right] \left[X_{ij} = a_{ij} X_i \right]$$

 X_{ii}

 $A = \begin{bmatrix}
0 & 0 & 0.5 \\
0.1 & 0 & 0 \\
0.2 & 0.5 & 0
\end{bmatrix}$ $Y = \begin{bmatrix} 800 \\ 350 \\ 400 \end{bmatrix} \quad X = \begin{bmatrix} 1242.86 \\ 474.29 \\ 885.71 \end{bmatrix}$

 $X_{21} = a_{21}X_1$

$$X_{ij}$$
 $X_{ij} = a_{ij}X_{j}$

 $X_{12} = a_{12}X_2 = 0.474.29 = 0$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442.86$

$$\begin{array}{|c|c|c|c|c|c|} \hline & X_{ij} & Y_i & X_i \\ \hline 1 & 2 & 3 & Y_i & X_i \\ \hline 1 & 0 & 0 & 442.86 & 800 & 1242.86 \\ \hline 2 & & & 350 & 474.29 \\ \hline 3 & & & 400 & 885.71 \\ \hline X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0 \\ X_{12} = a_{12}X_2 = 0 \cdot 474.29 = 0 \\ X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442.86 \\ \hline \end{array} \quad \begin{array}{c} X_i & X_i &$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442.86$$

 $X_{21} = a_{21}X_1 = 0.1 \cdot 1242.86$

 $X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$ $X_{12} = a_{12}X_2 = 0.474.29 = 0$

$$\frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij} X_j}$$

		· · · · · · · · · · · · · · · · · · ·		V .	l <i>X.</i> I		ΙU	U	0.51	
	1	2	3	''	λ_{l}	A =	0.1	_	0	
1	0	0	442.86	800	1242.86			0.5	0	
2	124.29			350	474.29		L			
3				400	885.71			Γιοι		

$$X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442.86$$

 $X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$ $X_{12} = a_{12}X_2 = 0 \cdot 474.29 = 0$

 X_{ii}

 $Y = \begin{bmatrix} 800 \\ 350 \\ \end{bmatrix} \quad X = \begin{bmatrix} 474.29 \\ 885.71 \end{bmatrix}$

 $X_{21} = a_{21}X_1 = 0.1 \cdot 1242.86 = 124.29$

$$= a_{ij}X_j$$

$$X_{12} = a_{12}X_2 = 0 \cdot 474.29 = 0$$

 $X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442.86$
 $X_{21} = a_{21}X_1 = 0.1 \cdot 1242.86 = 124.29$

 $X_{22} = a_{22}X_2$

$$\frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij} X_j}$$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442.86$$

 $X_{21} = a_{21}X_1 = 0.1 \cdot 1242.86 = 124.29$
 $X_{22} = a_{22}X_2 = 0 \cdot 474.29$

 $X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$ $X_{12} = a_{12}X_2 = 0.474.29 = 0$

$$X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442.86$$

 $X_{21} = a_{21}X_1 = 0.1 \cdot 1242.86 = 124.29$
 $X_{22} = a_{22}X_2 = 0 \cdot 474.29 = 0$

 $X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$ $X_{12} = a_{12}X_2 = 0.474.29 = 0$

		X_{ij}		Y_i	X_i			Γο	0	0.5	
	1	2	3	11	λ_i		A =	0 0.1 0.2	0	0	
1	0	0	442.86	800	1242.8	6		0.2	0.5	0	
2	124.29	0		350	474.29	9					
3				400	885.71	1			T1242		
X_{1}	$a_1 = a_{11}X_1$	$= 0 \cdot 124$	2.86 = 0			[80	Γο	<i>X</i> =			
X_{12}	$a_1 = a_{12}X_2$	$= 0 \cdot 474$.29 = 0		Y =	35	0		885	.71	
X_{1}	$a_3 = a_{13}X_3$	$=0.5\cdot88$	35.71 = 4	42.86		40	0				
X_2	$a_{21}X_1$	$=0.1\cdot 12$	242.86 =	124.29)						
X_{2}	$a_2 = a_{22}X_2$	$= 0 \cdot 474$.29 = 0								

$$X_{23} = a_{23}X_3$$

$$a_{ii} = \frac{X_{ij}}{a_{ij}}$$

 $a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$

		X_{ij}		Y_i	X_{i}			Γ	0	0	0.5	1
	1	2	3	11	Λį		<i>A</i> =	₌ C).1	0	0	
1	0	0	442.86	800	1242.8	6		C).2	0 0.5	0	
2	124.29	0		350	474.29	9					-	J
3				400	885.71	1				T ₁₂₄₂	06	1
<i>X</i> ₁₁	$=a_{11}X_1$	$= 0 \cdot 124$	2.86 = 0			80	[0	X		474 885		
X_{12}	$=a_{12}X_2$	$= 0 \cdot 474$.29 = 0		<i>Y</i> =	35	0			885	.71	
<i>X</i> ₁₃	$=a_{13}X_3$	$=0.5\cdot88$	35.71 = 4	42.86		40	0]					
X_{21}	$=a_{21}X_1$	$=0.1\cdot 12$	242.86 =	124.29)							
X_{22}	$= a_{22}X_2$:	= 0.474	.29 = 0									

$$X_{23} = a_{23}X_3 = 0.885.71$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

		X_{ij}		Y_i	X_i			Г	0	0	0.5	1
	1	2	3	1;	λ_i		A =	=				
1	0	0	442.86	800	1242.8	6			0.2	0 0.5	0	
2	124.29	0	0	350	474.29	9			-		-	_
3				400	885.71	1				T1242	2.06	
<i>X</i> ₁₁	$=a_{11}X_1$	$= 0 \cdot 124$	2.86 = 0			80	0	λ	< =	474	.29	
X_{12}	$= a_{12}X_2$	$= 0 \cdot 474$.29 = 0		Y =	35	0			885	.71	
<i>X</i> ₁₃	$=a_{13}X_3$	$=0.5\cdot88$	35.71 = 4	42.86		40	0]					
X_{21}	$=a_{21}X_1$	$=0.1\cdot 12$	242.86 =	124.29)							
X_{22}	$= a_{22} X_2$:	= 0.474	29 = 0									

$$X_{23} = a_{23}X_3 = 0 \cdot 885.71 = 0$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

		X_{ij}		Y_i	X_i			Γο	0	0.5]
	1	2	3	1;	λ_i		A =	0.1	0	0
1	0	0	442.86	800	1242.8	6		0.2	0.5	0.5 0 0
2	124.29	0	0	350	474.29	9				
3				400	885.71				124	2 06]
	$= a_{11}X_1 = a_{12}X_2 = a_$				Y =			<i>X</i> =	474 885	.29 5.71
X_{13}	$= a_{13}X_3$	$=0.5\cdot88$	35.71 = 4	42.86		L 40	0] -			
X_{21}	$=a_{21}X_1$	$=0.1\cdot 12$	242.86 =	124.29)					
X_{22}	$=a_{22}X_2$	= 0 · 474	.29 = 0	Υ	$= a_{31}X_1$					
X ₂₃	$=a_{23}X_3$	$= 0 \cdot 885$.71 = 0	^ 31	— a31∧1					

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

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$$a_{ij} = \frac{X_{ij}}{X_{i}} \qquad X_{ij} = a_{ij}X_{j}$$

		X_{ij}		Y_i	X_i				- 0	0	0.5]
	1	2	3	1;	Λ _i		<i>A</i> =	=	0.1	0	0
1	0	0	442.86	800	1242.86	5			0.2	0.5	0.5
2	124.29	0	0	350	474.29				-		
3	248.57			400	885.71					Γ ₁₀₄	2 06]
X_{12}	$= a_{11}X_1 = a_{12}X_2 = a_{13}X_3 = a_$	= 0 · 474	.29 = 0	42.86	<i>Y</i> =	80 35 40		X	< =	474 885	2.86 29 5.71
X_{22}	$= a_{21}X_1 = a_{22}X_2 = a_{23}X_3 = a_$	= 0 · 474	.29 = 0		$= a_{31}X_1$	=	0.2 ·	12	42.8	6 = 2	48.57

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad X_{ij} = a_{ij}X_j$$

		X_{ij}		Y_i	Χ.	<i>X</i> :		X_i		Го	0	0.5]
	1	2	3	11	λ_i		A =	= 0.1	0	0		
1	0	0	442.86	800	1242.8	6		0.2	0.5	0.5 0 0		
2	124.29	0	0	350	474.29							
3	248.57			400	885.71	1			Γ _{1 2 4}	2 96]		
	$= a_{11}X_1 = a_{12}X_2 = a_$				885.71 Y =	80	00	<i>X</i> =	474	5.71		
X_{13}	$= a_{13}X_3$	$=0.5\cdot88$	35.71 = 4	42.86		L 40	00]					
X_{21}	$= a_{21}X_1$	$=0.1\cdot 12$	242.86 =	124.29)							
	$= a_{22}X_2 = a_{23}X_3 = a_$			-	$= a_{31}X_1$ $= a_{32}X_2$		0.2 ·	1242.8	6 = 2	248.57		
a:	$x = \frac{X_{ij}}{X_{ij}}$	$X_{ii} = a$	ı X.	/\32	— a32M2	!						

 $a_{ij} = \frac{\lambda_{ij}}{X_j}$ $X_{ij} = a_{ij}X_j$ 16/25

		X_{ij}		Y:	Xi			Γα)	0	0.5	
	1	2	3	- ,	7 4		A =	₌ 0.	1	0	0	
1	0	0	442.86	800	1242.8	6		0.	2	0 0 0.5	0	
2	124.29	0	0	350	474.29)						
3	248.57			400	885.71					Γ ₁₀₄	2 06	1
	$= a_{11}X_1 = a_{12}X_2 = a_$				885.71 Y =	80 35	0 0	X =	=	474	.29 .71 _	
$X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442$						L40	0]					
X_{21}	$=a_{21}X_1$	$=0.1\cdot 12$	242.86 =									
	$= a_{22}X_2 = a_{23}X_3 = a_$				$= a_{31}X_1$ $= a_{32}X_2$					6 = 2	48.5	7
aij	$_{j}=\frac{X_{ij}}{X_{j}}$	$X_{ij} = a$	$y_{ij}X_j$								16 / 2	25

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	X_{ij}			Y_i	X_i			Г	0	0	0.5]
	1	2	3	1;	λ_i		A =	=	0.1	0	0.5 0 0
1	0	0	442.86	800	1242.8	6			0.2	0.5	0
2	124.29	0	0	350	474.29	9					
3	248.57	237.14		400	885.7	1				Γ124	2.86
$X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$ $X_{12} = a_{12}X_2 = 0 \cdot 474.29 = 0$				<i>Y</i> =	35	00	X	´ =	474 885	.29	
$X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 44$						L40	00]				
X_{21}	$=a_{21}X_1$	$=0.1\cdot 12$	242.86 =	124.29)						
$X_{22} = a_{22}X_2 = 0.474.29 = 0$ $X_{23} = a_{23}X_3 = 0.885.71 = 0$ $X_{31} = a_{31}X_1 = 0.2 \cdot 1242.86 = 248.57$ $X_{32} = a_{32}X_2 = 0.5 \cdot 474.29 = 237.14$											
ai	$_{i}=\frac{X_{ij}}{Y}$	$X_{ij} = a$	$u_{ij}X_i$								

	X_{ij}			Y_i	X_i		Γο	0	0.5]
	1	2	3	I į	λ_i	A =	= 0.1	0	0
1	0	0	442.86	800	1242.86		$\begin{bmatrix} 0 \\ 0.1 \\ 0.2 \end{bmatrix}$	0.5	0
2	124.29	0	0	350	474.29				_
3	248.57	237.14		400	885.71			Γ _{1.24}	2.86
	$= a_{11}X_1 = a_{12}X_2 = a_$				$Y = \begin{bmatrix} 8 \\ 3 \\ 4 \end{bmatrix}$	50	<i>X</i> =	474	5.71
$X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 4$				42.86	L4	00]			
X_{21}	$=a_{21}X_1$	$=0.1\cdot 12$	242.86 =	124.29)				
$X_{22} = a_{22}X_2 = 0.474.29 = 0$ $X_{23} = a_{23}X_3 = 0.885.71 = 0$ $X_{31} = a_{31}X_1 = 0.2 \cdot 1242.86 = 248.57$ $X_{32} = a_{32}X_2 = 0.5 \cdot 474.29 = 237.14$									
aij	$y = \frac{X_{ij}}{X_j}$	$X_{ij} = a$	X_j	<i>X</i> ₃₃	$=a_{33}X_3$				16 / 25

	X_{ij}			Y_i	X_i		Γο	0	0.5]
	1	2	3	1;	λ_i	A =	$\begin{bmatrix} 0 \\ 0.1 \\ 0.2 \end{bmatrix}$	0	0
1	0	0	442.86	800	1242.86		0.2	0.5	0
2	124.29	0	0	350	474.29				
3	248.57	237.14		400	885.71			Γ _{1.24}	2.86
	$= a_{11}X_1 = a_{12}X_2 = a_$				$Y = \begin{bmatrix} 80 \\ 31 \\ 41 \end{bmatrix}$	50	<i>X</i> =	474	5.71
$X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 4$				42.86	L40	00]			
X_{21}	$= a_{21}X_1$	$=0.1\cdot 12$	242.86 =	124.29)				
$X_{22} = a_{22}X_2 = 0.474.29 = 0$ $X_{23} = a_{23}X_3 = 0.885.71 = 0$ $X_{31} = a_{31}X_1 = 0.2 \cdot 1242.86 = 248.57$ $X_{32} = a_{32}X_2 = 0.5 \cdot 474.29 = 237.14$									
aij	$_{i}=\frac{X_{ij}}{X_{i}}$	$X_{ij}=a$	$_{ij}X_{j}$	<i>X</i> ₃₃	$= a_{33}X_3 =$	· 0 · 88	35.71		
	J								16 / 25

	X_{ij}			V	V		$A = \begin{bmatrix} 0 & 0 & 0.5 \\ 0.1 & 0 & 0 \\ 0.2 & 0.5 & 0 \end{bmatrix}$				
	1	2	3	Y_i	X_i	A		0.1	0	0.5	
1	0	0	442.86	800	1242.86			0.2	0.5	0	
2	124.29	0	0	350	474.29						
3	248.57	237.14	0	400	885.71				Γ _{1 2 4}	2.86	
$X_{11} = a_{11}X_1 = 0 \cdot 1242.86 = 0$ $X_{12} = a_{12}X_2 = 0 \cdot 474.29 = 0$					$Y = \begin{bmatrix} 8 \\ 3 \\ 2 \end{bmatrix}$	300 350		<i>X</i> =	474	5.71	
$X_{13} = a_{13}X_3 = 0.5 \cdot 885.71 = 442.86$					L	[00					
$X_{21} = a_{21}X_1 = 0.1 \cdot 1242.86 = 124.29$											
$X_{22} = a_{22}X_2 = 0.474.29 = 0$ $X_{23} = a_{23}X_3 = 0.885.71 = 0$ $X_{31} = a_{31}X_1 = 0.2.1242.86 = 248.57$ $X_{32} = a_{32}X_2 = 0.5.474.29 = 237.14$											
$a_{ij} = \frac{X_{ij}}{X_{i}}$ $X_{ij} = a_{ij}X_{j}$ $X_{33} = a_{33}X_{3} = 0.885.71 = 0$											
	λ_j									16 / 25	

treći zadatak

Zadatak 3

Zadana je matrica multiplikator

$$\begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}.$$

- a) Napravite input-output tablicu ako je vektor finalne potražnje jednak (130, 95).
- b) Za koliko posto se mora povećati proizvodnja u pojedinom sektoru ako se finalna potražnja u prvom sektoru poveća za 20%?

a) Matrica multiplikator

$$M = (I - A)^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

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$$T = I - A, \quad T = M^{-1}$$

 $\det M =$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A, \quad T = M^{-1}$$

det $M = 3.2 \cdot 3.5$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$
det $M = 3.2 \cdot 3.5 -$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$
det $M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$
 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$
 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$T =$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A, \quad T = M^{-1}$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T=\frac{1}{5.6}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A, \quad T = M^{-1}$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T=rac{1}{5.6}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$
 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$T = \frac{1}{5.6} \left[\begin{array}{c} 3.5 \\ \end{array} \right]$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A, \quad T = M^{-1}$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \left[\begin{array}{cc} 3.5 & \\ & 3.2 \end{array} \right]$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$
 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 \\ -1.75 & 3.2 \end{bmatrix}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$
 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$
 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \\ \end{bmatrix}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A, \quad T = M^{-1}$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} =$$

$$\frac{3.5}{5.6} =$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A, \quad T = M^{-1}$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} =$$

$$\frac{3.5}{5.6} = \frac{35}{56}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A, \quad T = M^{-1}$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} =$$

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} \\ \end{bmatrix}$$

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A, \quad T = M^{-1}$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} \\ \frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8} \\ \frac{-3.2}{5.6} = \frac{35}{56} = \frac{5}{8} \end{bmatrix}$$

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

$$\frac{-3.2}{5.6} = \frac{35}{8}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} \\ \frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8} \\ \frac{-3.2}{5.6} = \frac{-32}{56} \end{bmatrix}$$

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

$$\frac{-3.2}{5.6} = \frac{-32}{56}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} \\ & & \\ & & \end{bmatrix} \qquad \frac{\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}}{\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}}$$

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{3}{8}$$
$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A$$
, $T = M^{-1}$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ & & \end{bmatrix} \qquad \frac{\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}}{\frac{-32}{56} = \frac{-4}{7}}$$

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$
$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A$$
, $T = M^{-1}$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ & & \end{bmatrix} \qquad \frac{\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}}{\frac{-3.2}{56} = \frac{-4}{7}}$$

$$\frac{-1.75}{5.6} =$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A, \quad T = M^{-1}$$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$\frac{-1.75}{5.6} = \frac{-175}{560}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ & & \end{bmatrix} \qquad \frac{\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}}{\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}}$$

$$=\frac{-32}{56}=\frac{-4}{7}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A, \quad T = M^{-1}$$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-5}{160}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ & & \end{bmatrix} \qquad \frac{\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}}{\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}}$$

$$=\frac{-32}{56}=\frac{-4}{7}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A, \quad T = M^{-1}$$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-5}{160}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \end{bmatrix} \qquad \frac{\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}}{\frac{-3.2}{56} = \frac{-32}{56} = \frac{-4}{7}}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A, \quad T = M^{-1}$$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-5}{160}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}}{\frac{-3.2}{56} = \frac{-32}{56} = \frac{-4}{7}}$$

Matrica tehničkih koeficijenata

$$M = (I - A)^{-1}, M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A, \quad T = M^{-1}$$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-5}{160}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}}{\frac{-3.2}{56} = \frac{-32}{56} = \frac{-4}{7}}$$

$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

a) Matrica multiplikator

$$A = I - T$$

Matrica tehničkih koeficijenata

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A, \quad T = M^{-1}$$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$5.6 \begin{bmatrix} -1.75 & 3.2 \\ -1.75 & = \frac{-175}{560} = \frac{-1}{160} \end{bmatrix}$$

$$\begin{bmatrix} -\frac{4}{7} \\ \frac{4}{7} \end{bmatrix}$$

$$\frac{3.5}{5.6} = \frac{35}{56}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{\frac{3.5}{5.6}}{\frac{3.5}{56}} = \frac{\frac{35}{56}}{\frac{5}{6}} = \frac{\frac{5}{8}}{\frac{5}{6}}$$

Rješenje a) Matrica multiplikator

A = I - T

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$A =$$

Matrica tehnologije

$$T = I - A$$
, $T = M^{-1}$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{\frac{3.5}{5.6}}{\frac{3.5}{56}} = \frac{\frac{35}{56}}{\frac{5}{6}} = \frac{\frac{5}{8}}{\frac{8}{56}}$$
$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

$$\begin{bmatrix} -\frac{4}{7} \\ \frac{4}{7} \end{bmatrix}$$

$$\frac{3.5}{5.6} = \frac{35}{56}$$

$$=\frac{35}{56}=\frac{3}{8}$$

$$\frac{35}{56} = \frac{3}{8}$$

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$$=\frac{36}{56}=\frac{3}{8}$$

Matrica tehničkih koeficijenata

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$
$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

A = I - T

Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$\frac{3.5}{5.6} =$$

$$\frac{35}{56} = \frac{3}{8}$$
$$-32$$

$$\frac{3.2}{5.6} = \frac{-32}{56}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

 $M = \begin{vmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{vmatrix}$

T = I - A, $T = M^{-1}$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$5.6 \left[-1.75 \quad 3. \right]$$

$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-1}{11}$$

A = I - T

Matrica tehničkih koeficijenata

$$A = egin{bmatrix} 1 & 0 \ 0 & 1 \end{bmatrix} -$$

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$
$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A$$
, $T = M^{-1}$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$\begin{array}{c}
 -5.6 \left[-1.75 \quad 3.6 \right] \\
 -\frac{1.75}{5.6} = \frac{-175}{560} = \frac{-1}{1}
\end{array}$$

$$A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix}$$

Matrica tehničkih koeficijenata

A = I - T

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{\frac{3.5}{5.6}}{\frac{3.5}{56}} = \frac{\frac{35}{56}}{\frac{5}{6}} = \frac{\frac{5}{8}}{\frac{8}{56}}$$
$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

Rješenje a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A, \quad T = M^{-1}$$

$$M = 3.2 \cdot 3.5 - 1.75 \cdot 3.$$

 $\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$

$$1.75 \cdot 3$$

$$-\frac{4}{7}$$

$$A =$$

Matrica tehničkih koeficijenata

A = I - T

 $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix}$

$$=\frac{5}{8}$$

$$\frac{1}{5} = \frac{5}{8}$$

$$\frac{1}{5} = \frac{1}{8}$$

$$\frac{8}{-32} = \frac{-}{}$$

$$56$$
 8 = $\frac{-32}{-32}$ =

$$\frac{32}{66} = \frac{-4}{7}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$
$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$
$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-5}{16}$$

$$\frac{18}{66} = \frac{7}{7}$$

Rješenje a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

T = I - A, $T = M^{-1}$

$$I = I - A, \quad I = M$$

$$M = 3.2 \cdot 3.5 - 1.75 \cdot 3$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$3.5 - 1.75 \cdot 3.2 = 1$$

$$-1.75 \cdot 3.2 = 5.6$$

$$-\frac{4}{7}$$

$$-\frac{4}{7}$$

Matrica tehničkih koeficijenata

A = I - T

 $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix}$

 $A = \begin{bmatrix} \frac{3}{8} \\ \end{bmatrix}$

=
$$\frac{35}{}$$
 =

$$=\frac{5}{8}$$

$$=\frac{3}{8}$$

$$=\frac{8}{}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

$$-3.2 = \frac{-32}{5.6} = \frac{-4}{7}$$

$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-5}{16}$$

Rješenje a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

Matrica tehnologije

$$T = I - A, \quad T = M^{-1}$$

$$I = I - A$$
, $I = W$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3$$

$$M = 3.2 \cdot 3.5 - 1.75 \cdot 3.5$$

$$\begin{vmatrix} -3.2 \\ 3.2 \end{vmatrix} = \begin{vmatrix} \frac{5}{8} \\ -\frac{5}{16} \end{vmatrix}$$

$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-5}{16}$$

$$A = I - T$$

Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \end{bmatrix}$$

$$=\frac{35}{56}=\frac{5}{8}$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{\frac{3.5}{5.6}}{\frac{3.5}{56}} = \frac{\frac{5}{8}}{\frac{5}{6}} = \frac{\frac{5}{8}}{\frac{5}{6}}$$

$$-1.75 & -175 & -5$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

T = I - A, $T = M^{-1}$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$5.6 \left[-1.75 \quad 3.2 \right]$$

$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-5}{16}$$

A = I - T

Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} \end{bmatrix}$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

a) Matrica multiplikator

$$M = (I - A)^{-1}, \quad M = T^{-1}$$

$$M = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$T = I - A, \quad T = M^{-1}$$

$$\det M = 3.2 \cdot 3.5 - 1.75 \cdot 3.2 = 5.6$$

$$5.6 \left[-1.75 \quad 3.2 \right]$$

$$\frac{-1.75}{5.6} = \frac{-175}{560} = \frac{-5}{16}$$

A = I - T

Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

$$-3.2 \quad -32$$

$$T = \frac{1}{5.6} \begin{bmatrix} 3.5 & -3.2 \\ -1.75 & 3.2 \end{bmatrix} = \begin{bmatrix} \frac{5}{8} & -\frac{4}{7} \\ -\frac{5}{16} & \frac{4}{7} \end{bmatrix} \qquad \frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

$$-1.75 & -175 & -5$$

$$\frac{3.5}{5.6} = \frac{35}{56} = \frac{5}{8}$$

$$\frac{-3.2}{5.6} = \frac{-32}{56} = \frac{-4}{7}$$

$$(I-A)X=Y$$

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X =$$

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X =$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ \end{bmatrix}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

	X_{ij}		V.	Y
	1	2	Y;	λ_i
1				
2				

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

	X_{ij}		V	V
	1	2	Y į	λ_i
1			130	
2			95	

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$

	X _{ij}		V	Y
	1	2	1;	λ_i
1			130	720
2			95	560

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$	3 8 5 16	$\begin{bmatrix} \frac{4}{7} \\ \frac{3}{7} \end{bmatrix}$	
--	-------------------	--	--

	1	ij 2	Y _i	X _i
L			130	720
2			95	560

$$(I - A)X = Y$$
$$(I - A)^{-1}X$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

Χ	, Sij	V	Y	
1	2	1;	λ_i	
		130	720	
		95	560	

 $a_{ij}=\frac{X_{ij}}{X_{j}}$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

X _{ij}		V	V
1	2	1;	λ_i
		130	720
		95	560

$$\boxed{a_{ij} = \frac{X_{ij}}{X_j}} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

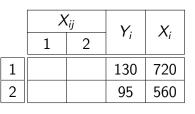
$$(I-A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$



$$X_{11} =$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

$$(I-A)X=Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

	X _{ij}		V.	Y
	1	2	' i	λ_i
1			130	720
2			95	560

$$X_{11}=a_{11}X_1$$

$$\boxed{a_{ij} = \frac{X_{ij}}{X_j}} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

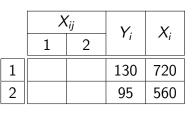
$$(I-A)X=Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$



$$X_{11} = a_{11}X_1 = \frac{3}{8}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

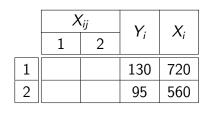
$$(I-A)X=Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$



$$X_{11}=a_{11}X_1=\frac{3}{8}\cdot 720$$

$$\boxed{a_{ij} = \frac{X_{ij}}{X_i}} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$(I-A)X=Y$$

$$X = (I - A)^{-1} Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

$$\begin{array}{c|cccc}
X_{ij} & & & & \\
\hline
1 & 2 & & & \\
\hline
270 & & 130 & 720 \\
\hline
2 & & 95 & 560 \\
\hline
\end{array}$$

$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$(I-A)X = Y$$

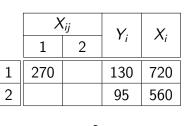
$$X = (I - A)^{-1} Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

$$a_{ij} = 1$$



$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

 $X_{12} =$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

$$(I-A)X=Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

$$\begin{array}{c|cccc}
X_{ij} & & & Y_i & X_i \\
\hline
1 & 2 & & 130 & 720 \\
\hline
270 & & 130 & 720 \\
& & 95 & 560 \\
\end{array}$$

 $X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$

$$X_{12} = a_{12}X_2$$

$$a_{ij} = \frac{X_{ij}}{X_j} \qquad X_{ij} = a_{ij}X_j$$

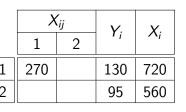
$$(I-A)X=Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$



$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

 $X_{12} = a_{12}X_2 = \frac{4}{7}$

$$a_{12} = a_{12}X_2 = 0$$

$$\begin{vmatrix} a_{ij} = \frac{X_{ij}}{X_i} \end{vmatrix} \quad \boxed{X_{ij} = a_{ij}X_j}$$

$$(I-A)X=Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

$$X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560$$

$$\boxed{\mathbf{a}_{ij} = \frac{X_{ij}}{X_j}} \qquad \boxed{\mathbf{X}_{ij} = \mathbf{a}_{ij} X_j}$$

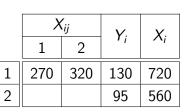
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$



$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

 $X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$

$$\boxed{\mathbf{a}_{ij} = \frac{X_{ij}}{X_j}} \qquad \boxed{\mathbf{X}_{ij} = \mathbf{a}_{ij} X_j}$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1} Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$X_{21} =$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

$$\begin{array}{c|cccc}
X_{ij} & & Y_i & X_i \\
\hline
1 & 2 & & & & \\
270 & 320 & 130 & 720 \\
& & & 95 & 560 \\
\end{array}$$

$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

 $X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$

$$\boxed{a_{ij} = \frac{X_{ij}}{X_j}} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$(I - A)X = Y$$

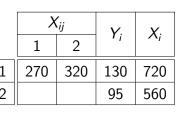
$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$



$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$



$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

 $X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$

$$X_{21} = a_{21}X_1$$

$$\boxed{a_{ij} = \frac{X_{ij}}{X_j}} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$(I-A)X=Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$



 $X_{11} = a_{11}X_1 = \frac{3}{9} \cdot 720 = 270$

$$X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$$

 $X_{21} = a_{21}X_1 = \frac{5}{16}$

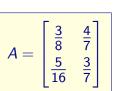
$$\boxed{\mathbf{a}_{ij} = \frac{X_{ij}}{X_i}} \qquad \boxed{\mathbf{X}_{ij} = \mathbf{a}_{ij} X_j}$$

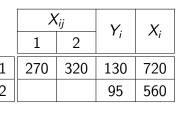
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$





$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

$$X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$$

$$X_{21} = a_{21}X_1 = \frac{5}{16} \cdot 720$$

$$\boxed{a_{ij} = \frac{X_{ij}}{X_i}} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$X_{ij} = a_{ij}X_j$$

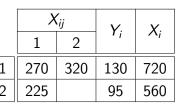
$$(I - A)X = Y$$
$$X - (I - A)^{-1}Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$



$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

 $X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$

$$X_{21} = a_{21}X_1 = \frac{5}{16} \cdot 720 = 225$$

$$\boxed{a_{ij} = \frac{X_{ij}}{X_j}} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$(I - A)X = Y$$
$$(I - A)^{-1}Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

$$X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$$

 $X_{21} = a_{21}X_1 = \frac{5}{16} \cdot 720 = 225$

$$X_{22} =$$

$$\frac{X_{ij}}{X_i}$$

 $\left| a_{ij} = \frac{X_{ij}}{X_i} \right| \quad \left[X_{ij} = a_{ij} X_j \right]$

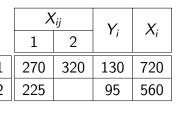
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$



$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

$$X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$$

 $X_{21} = a_{21}X_1 = \frac{5}{16} \cdot 720 = 225$

 $X_{22} = a_{22}X_2$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

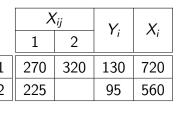
$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$



$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

 $X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$

$$X_{21} = a_{21}X_1 = \frac{5}{16} \cdot 720 = 225$$

 $X_{22} = a_{22}X_2 = \frac{3}{7}$

$$_{2}X_{2}=\frac{3}{7}$$

$$a_{ij} = \frac{X_{ij}}{X_i} \qquad X_{ij} = a_{ij}X_j$$

$$(I - A)X = Y$$

$$X = (I - A)^{-1}Y$$

$$X = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

$\begin{array}{c|cccc} X_{ij} & & Y_i & X_i \\ \hline 1 & 2 & & & \\ \hline 270 & 320 & 130 & 720 \\ \hline 225 & & 95 & 560 \\ \hline \end{array}$

$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

$$X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$$

 $X_{21} = a_{21}X_1 = \frac{5}{16} \cdot 720 = 225$

$$X_{22} = a_{22}X_2 = \frac{3}{7} \cdot 560$$

$$\boxed{a_{ij} = \frac{X_{ij}}{X_i}} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

$$(I - A)X = Y$$
$$X = (I - A)^{-1}Y$$

$$(-A)^{-1}Y$$

$$X = \begin{vmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{vmatrix} \begin{vmatrix} 130 \\ 95 \end{vmatrix}$$

$$X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

$$A = \begin{bmatrix} \frac{3}{8} & \frac{4}{7} \\ \frac{5}{16} & \frac{3}{7} \end{bmatrix}$$

$\begin{array}{c|ccccc} X_{ij} & & Y_i & X_i \\ \hline 1 & 2 & & & \\ \hline 270 & 320 & 130 & 720 \\ 225 & 240 & 95 & 560 \\ \hline \end{array}$

$$X_{11} = a_{11}X_1 = \frac{3}{8} \cdot 720 = 270$$

$$X_{12} = a_{12}X_2 = \frac{4}{7} \cdot 560 = 320$$

 $X_{21} = a_{21}X_1 = \frac{5}{16} \cdot 720 = 225$

$$X_{22} = a_{22}X_2 = \frac{3}{7} \cdot 560 = 240$$

$$\boxed{a_{ij} = \frac{X_{ij}}{X_i}} \qquad \boxed{X_{ij} = a_{ij}X_j}$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix}$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ \leftarrow Y_2$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \qquad X = \begin{bmatrix} 720 \\ 560 \end{bmatrix}$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \qquad X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \qquad X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \stackrel{\longleftarrow}{\longleftarrow} \stackrel{Y_1}{\longleftarrow} X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \stackrel{\longleftarrow}{\longleftarrow} \stackrel{X_1}{\longleftarrow} X_2$$

 Y_1 se poveća za 20%

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$
 Y_1 se poveća za 20%

$$Y_1' =$$

$$\frac{\rho}{100}$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$
 Y_1 se poveća za 20% $Y_1' = 130 +$

$$y = \frac{p}{100} \cdot x$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$
 Y_1 se poveća za 20%
 $Y_1' = 130 + \frac{20}{100} \cdot 130$

$$\frac{2}{00} \cdot x$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$
 Y_1 se poveća za 20%
 $Y_1' = 130 + \frac{20}{100} \cdot 130$

$$Y_1' =$$

$$y = \frac{p}{100} \cdot x$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$
 Y_1 se poveća za 20%
 $Y_1' = 130 + \frac{20}{100} \cdot 130$

$$Y_1' = 130 + 26$$

$$y = \frac{p}{100} \cdot x$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ \leftarrow Y_2$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1 \\ \leftarrow X_2$ Y_1 se poveća za 20%

$$Y_1' = 130 + \frac{20}{100} \cdot 130$$

$$Y_1' = 130 + 26 = 156$$

$$y = \frac{p}{100} \cdot x$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix}$ Y_1 se poveća za 20%

 Y_1 se poveca za 20%

$$Y_1' = 130 + \frac{20}{100} \cdot 130$$

$$Y_1' = 130 + 26 = 156$$

$$y = \frac{p}{100} \cdot x$$

$$Y_1$$
 se poveća za 20% $Y_1'=130+rac{20}{100}\cdot 130$

 $Y_1' = 130 + 26 = 156$

b) $Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \stackrel{\longleftarrow}{\longleftarrow} \stackrel{Y_1}{\longleftarrow} X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \stackrel{\longleftarrow}{\longleftarrow} \stackrel{X_1}{\longleftarrow} Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \stackrel{\longleftarrow}{\longleftarrow} \stackrel{Y'_1}{\longleftarrow} Y'_1$

$$y = \frac{p}{100} \cdot x$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y'_1 se poveća za 20%

$$Y_1' = 130 + \frac{20}{100} \cdot 130$$

$$Y_1' = 130 + 26 = 156$$

$$y = \frac{p}{100} \cdot x$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y'_1 se poveća za 20%

$$Y_1' = 130 + \frac{20}{100} \cdot 130$$

$$Y_1' = 130 + 26 = 156$$

 $(I - A)X' = Y'$

$$y = \frac{p}{100} \cdot x$$

$$Y'_1 = 130 + 26 = 156$$

 $(I - A)X' = Y'$
 $X' = (I - A)^{-1}Y'$

 Y_1 se poveća za 20%

 $Y_1' = 130 + \frac{20}{100} \cdot 130$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y'_1 se poveća za 20%

$$Y_1$$
 se poveća za 20% $Y_1' = 130 + \frac{20}{100} \cdot 130$ $Y_1' = 130 + 26 = 156$

$$X' =$$

(I - A)X' = Y' $X' = (I - A)^{-1}Y'$

$$Y'_1 = 130 + 26 = 156$$

 $(I - A)X' = Y'$
 $X' = (I - A)^{-1}Y'$

 Y_1 se poveća za 20%

 $Y_1' = 130 + \frac{20}{100} \cdot 130$

 $X' = \begin{vmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{vmatrix}$

b) $Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$ $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$

 $y = \frac{p}{100} \cdot x$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$

 Y_1 se poveća za 20%

$$Y_1' = 130 + \frac{20}{100} \cdot 130$$

 $Y_1' = 130 + 26 = 156$

$$(I-A)X'=Y'$$

$$X' = (I - A)^{-1}Y'$$

$$X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$$

$$y = \frac{p}{100} \cdot x$$

$$Y'_1 = 130 + 26 = 156$$

 $(I - A)X' = Y'$
 $X' = (I - A)^{-1}Y'$

 $y = \frac{p}{100} \cdot x$

b) $Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$ $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$

 Y_1 se poveća za 20%

 $Y_1' = 130 + \frac{20}{100} \cdot 130$

 $X' = \begin{vmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{vmatrix} \begin{vmatrix} 156 \\ 95 \end{vmatrix}$

X' =

$$Y'_1 = 130 + 26 = 156$$

 $(I - A)X' = Y'$
 $X' = (I - A)^{-1}Y'$

 $X' = \begin{bmatrix} 803.2 \end{bmatrix}$

 Y_1 se poveća za 20%

 $Y_1' = 130 + \frac{20}{100} \cdot 130$

 $X' = \begin{vmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{vmatrix} \begin{vmatrix} 156 \\ 95 \end{vmatrix}$

$$y = \frac{p}{100} \cdot x$$

$$Y'_1 = 130 + \frac{20}{100} \cdot 130$$

 $Y'_1 = 130 + 26 = 156$
 $(I - A)X' = Y'$

 $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix}$

 Y_1 se poveća za 20%

 $X' = (I - A)^{-1}Y'$

 $X' = \begin{vmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{vmatrix} \begin{vmatrix} 156 \\ 95 \end{vmatrix}$

$$y = \frac{p}{100} \cdot x$$

$$Y_1' = 130 + \frac{20}{100} \cdot 130$$

 $Y_1' = 130 + 26 = 156$

$$X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$$

(I - A)X' = Y' $X' = (I - A)^{-1}Y'$

 Y_1 se poveća za 20%

$$X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \longleftarrow X_1'$$

$$y = \frac{p}{100} \cdot x$$

$$Y'_1 = 130 + 26 = 156$$

 $(I - A)X' = Y'$
 $X' = (I - A)^{-1}Y'$

 $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X_1' \\ \leftarrow X_2'$

 $X' = \begin{vmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{vmatrix} \begin{vmatrix} 156 \\ 95 \end{vmatrix}$

 Y_1 se poveća za 20%

 $Y_1' = 130 + \frac{20}{100} \cdot 130$

$$y = \frac{p}{100} \cdot x$$

$$Y'_{1} = 130 + \frac{20}{100} \cdot 130$$

$$Y'_{1} = 130 + 26 = 156$$

$$(I - A)X' = Y'$$

$$X' = (I - A)^{-1}Y'$$

$$X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$$

 $y = \frac{p}{100} \cdot x$

b) $Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$ $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$

Prvi sektor

 Y_1 se poveća za 20%

 $X' = \begin{vmatrix} 803.2 & \longleftarrow X_1' \\ 605.5 & \longleftarrow X_2' \end{vmatrix}$

$$Y_1$$
 se poveća za 20%

 $Y_1' = 130 + \frac{20}{100} \cdot 130$
 $Y_1' = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$
 $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X_1'$
 $X' = \begin{bmatrix} y = \frac{p}{100} \cdot x \\ y = \frac{p}{100} \cdot x \end{bmatrix}$

$$Y_1$$
 se poveća za 20%

 $Y_1' = 130 + \frac{20}{100} \cdot 130$
 $Y_1' = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = (I - A)^{-1}Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$
 $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$
 $X' = \begin{bmatrix} x_1 \\ y_2 \\ y_3 \\ y_4 \end{bmatrix}$

 Y_1 se poveća za 20%

Y₁ se poveća za 20%

Y'₁ = 130 +
$$\frac{20}{100} \cdot 130$$

X₁ = 720, X'₁ = 803.2, X'₁ - X₁ =

Y'₁ = 130 + 26 = 156

(I - A)X' = Y'

X' = (I - A)^{-1}Y'

X' = $\begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$

$$X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_{1}$$

$$Y'_{1} = X'_{2}$$
 $Y'_{2} = X'_{1}$

$$Y'_{3} = X'_{4}$$

$$Y'_{4} = X'_{5}$$

$$Y'_{5} = X'_{5}$$

$$Y'_{5} = X'_{5}$$

$$Y'_{5} = X'_{5}$$

$$Y'_{5} = X'_{5}$$

b) $Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$ $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$

 Y_1 se poveća za 20%

$$Y_1$$
 se poveća za 20%
$$Y_1' = 130 + \frac{20}{100} \cdot 130$$
 $X_1 = 720, X_1' = 803.2, X_1' - X_1 = 83.2$

$$Y_1' = 130 + 26 = 156$$

$$(I - A)X' = Y'$$

$$X' = (I - A)^{-1}Y'$$

$$X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$$

$$X' = \begin{bmatrix} 803.2 \\ 605.5 \\ - X' \end{bmatrix}$$

 $y = \frac{p}{100} \cdot x$

b) $Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$ $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20% $Y'_1 = 130 + \frac{20}{100} \cdot 130$ $Y_1' = 130 + 26 = 156$ $(I - A)X' = Y'$ $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$ $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$ $y = \frac{p}{100} \cdot x$ $p = \frac{100y}{x}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $Y = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20% $Y'_1 = 130 + \frac{20}{100} \cdot 130$ $Y'_1 = 130 + 26 = 156$ $Y'_1 = 130 + 26 = 156$ $Y'_2 = \begin{bmatrix} 130 \\ 1 - A \end{bmatrix} = \begin{bmatrix} 130 \\ 1 - A \end{bmatrix}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20% $Y'_1 = 130 + \frac{20}{100} \cdot 130$ $Y'_1 = 130 + 26 = 156$ $Y'_1 = 130 + 26 = 156$ $Y'_2 = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$ $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$ $Y' = \begin{bmatrix} 803.2 \\ 100 \end{bmatrix} \leftarrow X'_1$ $Y' = \begin{bmatrix} 100y \\ 100 \end{bmatrix}$ $Y = \begin{bmatrix} 100y \\ 100 \end{bmatrix}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20% $Y'_1 = 130 + \frac{20}{100} \cdot 130$ $Y'_1 = 130 + 26 = 156$ $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$ $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$ $y = \frac{p}{100} \cdot x$ $p = \frac{100y}{x}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20% $Y'_1 = 130 + \frac{20}{100} \cdot 130$ $Y'_1 = 130 + 26 = 156$ $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$ $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$ $y = \frac{p}{100} \cdot x$ $p = \frac{100y}{x}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20% $Y'_1 = 130 + \frac{20}{100} \cdot 130$ $Y'_1 = 130 + 26 = 156$ $(I - A)X' = Y'$ $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$ $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$ $y = \frac{p}{100} \cdot x$ $p = \frac{100y}{x}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20% $Y'_1 = 130 + \frac{20}{100} \cdot 130$ $Y'_1 = 130 + 26 = 156$ $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$ $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$ $y = \frac{p}{100} \cdot x$ $p = \frac{100y}{x}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20%

 $Y_1' = 130 + \frac{20}{100} \cdot 130$
 $Y_1' = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$
 $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$
 $X = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$
 $X = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow X'_1$
 $X = \begin{bmatrix} 720 \\ 95 \end{bmatrix} \leftarrow X_1$
 $X = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 $X = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow X'_1$
 $X = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow X'_1$
 $Y = \begin{bmatrix} 100 \cdot 83.2 \\ 1.75 & 3.5 \end{bmatrix} \leftarrow X'_1$
 $Y = \begin{bmatrix} 100 \cdot 83.2 \\ 1.75 & 3.5 \end{bmatrix} \leftarrow X'_1$
 $Y = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow X'_1$
 $Y = \begin{bmatrix} 100 \cdot 83.2 \\ 1.75 & 3.5 \end{bmatrix} \leftarrow X'_1$
 $Y = \begin{bmatrix} 100 \cdot 83.2 \\ 1.75 & 3.5 \end{bmatrix} \leftarrow X'_1$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20% $Y'_1 = 130 + \frac{20}{100} \cdot 130$ $Y'_1 = 130 + 26 = 156$ $Y'_1 = 130 + 26 = 156$ $Y'_2 = \begin{bmatrix} 130 \cdot 83.2 \\ 720 \end{bmatrix} \approx 11.56$ Proizvodnja se mora povećati za 11.56%. $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$ $X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1 = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_2$ $y = \frac{p}{100} \cdot x$ $p = \frac{100y}{x}$

20 / 25

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$ $Y'_1 = 130 + \frac{20}{100} \cdot 130$ $Y'_1 = 130 + 26 = 156$ $Y'_2 = 130 + 26 = 156$ $Y'_3 = 130 + 26 = 156$ $Y'_4 = 130 + 26 = 156$ $Y'_5 = 156 = 156$ $Y'_5 = 156 = 156$ Proizvodnja se mora povećati za 11.56%. $Y'_5 = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$ $X'_5 = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1 = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1 = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_2 = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_2 = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1 = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_2 = \begin{bmatrix} 80.2 \\ 605.5 \end{bmatrix} \leftarrow X'_2 = \begin{bmatrix} 80.2 \\ 605.5 \end{bmatrix} \leftarrow X'_2 = \begin{bmatrix}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1$$
 $X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1$ $Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 Y_1 se poveća za 20%

 $Y_1' = 130 + \frac{20}{100} \cdot 130$
 $Y_1' = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$

Proizvodnja se mora povećati za 11.56%.

$$X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$$

$$X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$$

$$Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$$
 $X' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1$
 $X' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow X'_1$

$$X_1 = 720, X'_1 = 803.2, X'_1 - X_1 = 83.2$$

Proizvodnja se mora povećati za 11.56%.

Drugi sektor

$$X_2 = 560, X'_2 = 605.5$$

$$X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$$

$$Y = \frac{p}{100} \cdot X$$

$$Y = \frac{100y}{x}$$

$$Y = \frac{100y}{x}$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ Y_2 \end{bmatrix} X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1 \\ X_2 \end{bmatrix} Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1 \\ Y'_1 = 130 + \frac{20}{100} \cdot 130$$
 $Y'_1 = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$

Proize sektor

 $X_1 = 720, X'_1 = 803.2, X'_1 - X_1 = 83.2$
 $p_1 = \frac{100 \cdot 83.2}{720} \approx 11.56$

Proize sektor

 $X_2 = 560, X'_2 = 605.5, X'_2 - X_2 = 1000$
 $X'_1 = 130 + 26 = 156$
 $Y'_2 = 130 + 26 = 156$

Proize sektor

 $Y'_1 = 130 + 26 = 156$
 $Y'_1 = 130 + 26 + 26 = 156$
 $Y'_1 = 130 + 26 + 26 = 156$
 $Y'_1 = 130 + 26 +$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ Y_2 \end{bmatrix} X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1 \\ X_2 \end{bmatrix} Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1 \\ Y'_1 = 130 + \frac{20}{100} \cdot 130 \end{bmatrix} Y'_1 = 130 + 26 = 156 (I - A)X' = Y' X' = (I - A)^{-1}Y' X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$$
Proizvodnja se mora povećati za 11.56%.

Drugi sektor $X_2 = 560, X_2' = 605.5, X_2' - X_2 = 45.5$

$$X' = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1 \\ Y' = \frac{p}{100} \cdot X \end{bmatrix} P = \frac{100y}{x}$$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ Y_2 \end{bmatrix} \quad X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1 \\ X_2 \end{bmatrix} \quad Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1 \\ Y'_1 = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_2 \end{bmatrix}$$

Y₁ se poveća za 20%

Y'₁ = 130 + $\frac{20}{100} \cdot 130$
 $Y'_1 = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} (I - A)^{-1}Y' \\ X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$

Proizvodnja se mora povećati za 11.56%.

Drugi sektor

 $X_2 = 560, \quad X'_2 = 605.5, \quad X'_2 - X_2 = 45.5$
 $y = \begin{bmatrix} 803.2 \\ 605.5 \end{bmatrix} \leftarrow X'_1$
 $y = \frac{p}{100} \cdot x$
 $y = \frac{100y}{x}$
 $y = \frac{100y}{x}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ Y_2 \end{bmatrix} \quad X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1 \\ X_2 \end{bmatrix} \quad Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1 \\ Y'_1 = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_2 \end{bmatrix}$$

Y₁ se poveća za 20%

Y'₁ = 130 + $\frac{20}{100} \cdot 130$
 $Y'_1 = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} (I - A)^{-1}Y' \\ X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$

Proizvodnja se mora povećati za 11.56%.

Drugi sektor

 $X_2 = 560, \quad X'_2 = 605.5, \quad X'_2 - X_2 = 45.5$
 $y = \frac{p}{100} \cdot x$
 $y = \frac{100y}{x}$
 $y = \frac{100y}{x}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ Y_2 \end{bmatrix} \quad X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1 \\ X_2 \end{bmatrix} \quad Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1 \\ Y'_1 = 130 + \frac{20}{100} \cdot 130$$
 $Y'_1 = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$

Proizvodnja se mora povećati za 11.56%.

Drugi sektor

 $X_2 = 560, \quad X'_2 = 605.5, \quad X'_2 - X_2 = 45.5$
 $P_2 = \frac{100 \cdot x}{100} \cdot x$
 $P_3 = \frac{100 \cdot x}{x}$
 $P_4 = \frac{100 \cdot x}{x}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ Y_2 \end{bmatrix} X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1 \\ X_2 \end{bmatrix} Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1 \\ Y'_1 = 130 + \frac{20}{100} \cdot 130$$
 $Y'_1 = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$

Proizvodnja se mora povećati za 11.56%.

Drugi sektor

 $X_2 = 560, X_2' = 605.5, X_2' - X_2 = 45.5$
 $P_2 = \frac{100 \cdot 45.5}{100} \leftarrow X'_1$
 $P_3 = \frac{100 \cdot 45.5}{100} \leftarrow X'_2$
 $P_4 = \frac{100 \cdot 45.5}{100} \leftarrow X_2' = \frac{100 \cdot 45.5}{100} \leftarrow X'_2 = \frac{1000}{100} \leftarrow X'_2 = \frac{1000}{100} \leftarrow X'_2 = \frac{1000}{100} \leftarrow X'_2 = \frac{1000}{100}$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ Y_2 \end{bmatrix} \quad X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1 \\ X_2 \end{bmatrix} \quad Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1 \\ Y'_1 = 130 + \frac{20}{100} \cdot 130$$
 $Y'_1 = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$

Proizvodnja se mora povećati za 11.56%.

Drugi sektor

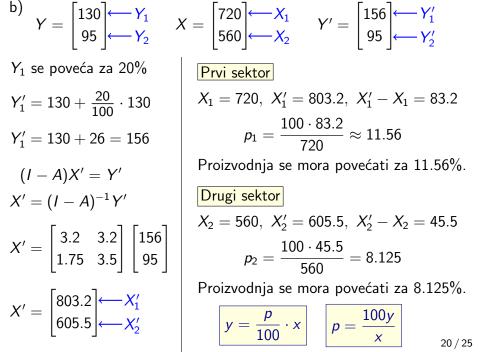
 $X_2 = 560, \quad X'_2 = 605.5, \quad X'_2 - X_2 = 45.5$
 $P_2 = \frac{100 \cdot 45.5}{560}$
 $P_3 = \frac{100 \cdot 45.5}{560}$
 $P_4 = \frac{100}{2} \cdot X_2 =$

b)
$$Y = \begin{bmatrix} 130 \\ 95 \end{bmatrix} \leftarrow Y_1 \\ Y_2 \end{bmatrix} \quad X = \begin{bmatrix} 720 \\ 560 \end{bmatrix} \leftarrow X_1 \\ X_2 \end{bmatrix} \quad Y' = \begin{bmatrix} 156 \\ 95 \end{bmatrix} \leftarrow Y'_1 \\ Y'_1 = 130 + \frac{20}{100} \cdot 130$$
 $Y'_1 = 130 + 26 = 156$
 $(I - A)X' = Y'$
 $X' = \begin{bmatrix} 3.2 & 3.2 \\ 1.75 & 3.5 \end{bmatrix} \begin{bmatrix} 156 \\ 95 \end{bmatrix}$

Proizvodnja se mora povećati za 11.56%.

Drugi sektor

 $X_2 = 560, \quad X'_2 = 605.5, \quad X'_2 - X_2 = 45.5$
 $P_2 = \frac{100 \cdot 45.5}{560} = 8.125$
 $P_3 = \frac{100 \cdot 45.5}{560} = 8.125$
 $P_4 = \frac{100}{2} \cdot X_1$
 $P_4 = \frac{100}{2} \cdot X_2 = 100 \cdot 45.5$
 $P_4 = \frac{100}{2} \cdot X_2 = 100 \cdot 45.5$
 $P_4 = \frac{100}{2} \cdot X_2 = 100 \cdot 45.5$
 $P_4 = \frac{100}{2} \cdot X_2 = 100 \cdot 45.5$
 $P_4 = \frac{100}{2} \cdot X_2 = 100 \cdot 45.5$
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 $P_4 = \frac{100}{2} \cdot X_2 = 100 \cdot 45.5$



četvrti zadatak

Zadatak 4

Zadana je matrica tehničkih koeficijenata

$$\begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

jednog trosektorskog modela ekonomije.

- a) Koliko je od proizvodnje prvog i trećeg sektora namijenjeno zadovoljenju finalne potražnje ako je ukupna proizvodnja u prvom sektoru jednaka 140 jedinica, u trećem 200 jedinica, a od proizvodnje drugog sektora za finalnu potražnju se odvaja 85 jedinica?
- b) Koliko se od proizvodnje pojedinog sektora troši u procesu reprodukcije?

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

$$I - A =$$

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

$$I - A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

$$I - A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} -$$

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

$$I - A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

$$I - A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix} = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

$$I - A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix} = \begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

$$I - A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix} = \begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \end{bmatrix}$$

a) Matrica tehničkih koeficijenata

$$A = \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix}$$

$$I - A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} 0.2 & 0.1 & 0 \\ 0 & 0.3 & 0.1 \\ 0.1 & 0.1 & 0.2 \end{bmatrix} = \begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix}$$

$$(I-A)X=Y$$

$$(I-A)X=Y$$

$$(I - A)X = Y$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix}$$

$$(I - A)X = Y$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix}$$

$$X_1 = 140$$

$$(I-A)X=Y$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ \end{bmatrix}$$

$$X_1 = 140$$

$$(I-A)X=Y$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \end{bmatrix}$$

$$X_1 = 140$$

$$X_1 = 140$$
$$X_3 = 200$$

$$(I-A)X=Y$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \\ 200 \end{bmatrix}$$

$$X_1 = 140$$

$$X_3 = 200$$

$$(I-A)X=Y$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \\ 200 \end{bmatrix} = \begin{bmatrix} 140 \\ 200 \end{bmatrix}$$

$$X_1 = 140$$

$$X_3 = 200$$

$$(I-A)X=Y$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \\ 200 \end{bmatrix} = \begin{bmatrix} Y_1 \\ Y_2 \end{bmatrix}$$

$$X_1 = 140$$

$$(I-A)X=Y$$

$$X_3 = 200$$
$$Y_2 = 85$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \\ 200 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \end{bmatrix}$$

$$Y_2 = 85$$

$$\begin{vmatrix} 140 \\ X_2 \\ 200 \end{vmatrix} = \begin{vmatrix} Y_1 \\ 85 \\ \end{vmatrix}$$

$$X_1 = 140$$

$$(I-A)X=Y$$

$$X_3 = 200$$
$$Y_2 = 85$$

$$\begin{array}{c|cccc}
0.8 & -0.1 & 0 \\
0 & 0.7 & -0
\end{array}$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \\ 200 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$Y_2 = 85$$

$$X_1 = 140$$

$$(I-A)X=Y$$

$$X_3 = 200$$
$$Y_2 = 85$$

$$\begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \\ 200 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$Y_2 = 85$$

$$0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200$$

$$0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \left[112 - 0.1X_2 \right]$$

$$0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \left[112 - 0.1 X_2 \right]$$

$$0 \cdot 140 + 0.7 \cdot X_2 - 0.1 \cdot 200 \left[112 - 0.1 X_2 \right]$$

$$0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \begin{bmatrix} 112 - 0.1X_2 \\ 0 \cdot 140 + 0.7 \cdot X_2 - 0.1 \cdot 200 \end{bmatrix} 0.7X_2 - 20$$

$$\begin{array}{c} 0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \\ 0 \cdot 140 + 0.7 \cdot X_2 - 0.1 \cdot 200 \\ -0.1 \cdot 140 - 0.1 \cdot X_2 + 0.8 \cdot 200 \end{array} \begin{bmatrix} 112 - 0.1X_2 \\ 0.7X_2 - 20 \\ \end{array} \right]$$

$$\begin{array}{c} 0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \\ 0 \cdot 140 + 0.7 \cdot X_2 - 0.1 \cdot 200 \\ -0.1 \cdot 140 - 0.1 \cdot X_2 + 0.8 \cdot 200 \end{array} \begin{bmatrix} 112 - 0.1X_2 \\ 0.7X_2 - 20 \\ 146 - 0.1X_2 \end{bmatrix}$$

$$112 - 0.1X_2 = Y_1$$

$$112 - 0.1X_2 = Y_1$$
$$0.7X_2 - 20 = 85$$

$$\begin{array}{c} 0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \\ 0 \cdot 140 + 0.7 \cdot X_2 - 0.1 \cdot 200 \\ -0.1 \cdot 140 - 0.1 \cdot X_2 + 0.8 \cdot 200 \end{array} \begin{bmatrix} 112 - 0.1X_2 \\ 0.7X_2 - 20 \\ 146 - 0.1X_2 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$112 - 0.1X_2 = Y_1$$
$$0.7X_2 - 20 = 85$$
$$146 - 0.1X_2 = Y_3$$

$$\begin{array}{c} 0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \\ 0 \cdot 140 + 0.7 \cdot X_2 - 0.1 \cdot 200 \\ -0.1 \cdot 140 - 0.1 \cdot X_2 + 0.8 \cdot 200 \end{array} \begin{bmatrix} 112 - 0.1X_2 \\ 0.7X_2 - 20 \\ 146 - 0.1X_2 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$112 - 0.1X_2 = Y_1$$
$$0.7X_2 - 20 = 85$$
$$146 - 0.1X_2 = Y_3$$

$$112 - 0.1X_2 = Y_1$$

$$0.7X_2 - 20 = 85 \longrightarrow 0.7X_2 = 105$$

$$146 - 0.1X_2 = Y_3$$

$$\begin{aligned} X_1 &= 140 \\ X_3 &= 200 \\ Y_2 &= 85 \end{aligned} & \begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \\ 200 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$\begin{aligned} 0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \\ 0 \cdot 140 + 0.7 \cdot X_2 - 0.1 \cdot 200 \\ -0.1 \cdot 140 - 0.1 \cdot X_2 + 0.8 \cdot 200 \end{bmatrix} 112 - 0.1X_2 \\ 0.7X_2 - 20 \\ 146 - 0.1X_2 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$112 - 0.1X_2 = Y_1 \\ 0.7X_2 - 20 = 85 \longrightarrow 0.7X_2 = 105$$

$$X_2 = 150$$

 $146 - 0.1X_2 = Y_3$

$$\begin{aligned} X_1 &= 140 \\ X_3 &= 200 \\ Y_2 &= 85 \end{aligned} & \begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \\ 200 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$\begin{aligned} 0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \\ 0 \cdot 140 + 0.7 \cdot X_2 - 0.1 \cdot 200 \\ -0.1 \cdot 140 - 0.1 \cdot X_2 + 0.8 \cdot 200 \end{bmatrix} 112 - 0.1X_2 \\ 0.7X_2 - 20 \\ 146 - 0.1X_2 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$112 - 0.1X_2 = Y_1 \xrightarrow{\text{www}} Y_1 = \\ 0.7X_2 - 20 = 85 \xrightarrow{\text{which is producted}} 0.7X_2 = 105 \end{aligned} \qquad X_2 = 150$$

 $146 - 0.1X_2 = Y_3$

$$X_{1} = 140$$

$$(I - A)X = Y$$

$$X_{3} = 200$$

$$Y_{2} = 85$$

$$\begin{bmatrix}
0.8 & -0.1 & 0 \\
0 & 0.7 & -0.1 \\
-0.1 & -0.1 & 0.8
\end{bmatrix} \begin{bmatrix}
140 \\
X_{2} \\
200
\end{bmatrix} = \begin{bmatrix}
Y_{1} \\
85 \\
Y_{3}
\end{bmatrix}$$

$$0.8 \cdot 140 - 0.1 \cdot X_{2} + 0 \cdot 200 \\
0 \cdot 140 + 0.7 \cdot X_{2} - 0.1 \cdot 200 \\
-0.1 \cdot 140 - 0.1 \cdot X_{2} + 0.8 \cdot 200
\end{bmatrix} = \begin{bmatrix}
Y_{1} \\
85 \\
Y_{3}
\end{bmatrix}$$

$$112 - 0.1X_{2} = Y_{1} \xrightarrow{\text{www}} Y_{1} = 112 - 0.1 \cdot 150$$

$$0.7X_{2} - 20 = 85 \longrightarrow 0.7X_{2} = 105$$

$$X_{2} = 150$$

 $146 - 0.1X_2 = Y_3$

$$\begin{aligned} X_1 &= 140 \\ X_3 &= 200 \\ Y_2 &= 85 \end{aligned} & \begin{bmatrix} 0.8 & -0.1 & 0 \\ 0 & 0.7 & -0.1 \\ -0.1 & -0.1 & 0.8 \end{bmatrix} \begin{bmatrix} 140 \\ X_2 \\ 200 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$\begin{aligned} 0.8 \cdot 140 - 0.1 \cdot X_2 + 0 \cdot 200 \\ 0 \cdot 140 + 0.7 \cdot X_2 - 0.1 \cdot 200 \\ -0.1 \cdot 140 - 0.1 \cdot X_2 + 0.8 \cdot 200 \end{bmatrix} \begin{bmatrix} 112 - 0.1X_2 \\ 0.7X_2 - 20 \\ 146 - 0.1X_2 \end{bmatrix} = \begin{bmatrix} Y_1 \\ 85 \\ Y_3 \end{bmatrix}$$

$$112 - 0.1X_2 = Y_1 \xrightarrow{\text{www}} Y_1 = 112 - 0.1 \cdot 150$$
 $Y_1 = 97$
 $0.7X_2 - 20 = 85 \longrightarrow 0.7X_2 = 105$ $X_2 = 150$
 $146 - 0.1X_2 = Y_3$

 $0.7X_2 - 20 = 85 \longrightarrow 0.7X_2 = 105$

 $146 - 0.1X_2 = Y_3$

 $X_2 = 150$

$$112 - 0.1X_2 = Y_1 \longrightarrow Y_1 = 112 - 0.1 \cdot 150$$
 $Y_1 = 97$
 $0.7X_2 - 20 = 85 \longrightarrow 0.7X_2 = 105$ $X_2 = 150$
 $146 - 0.1X_2 = Y_3 \longrightarrow Y_3 =$

$$112 - 0.1X_2 = Y_1 \longrightarrow Y_1 = 112 - 0.1 \cdot 150$$
 $Y_1 = 97$
 $0.7X_2 - 20 = 85 \longrightarrow 0.7X_2 = 105$ $X_2 = 150$
 $146 - 0.1X_2 = Y_3 \longrightarrow Y_3 = 146 - 0.1 \cdot 150$

$$X_{1} = 140$$

$$(I - A)X = Y$$

$$X_{3} = 200$$

$$Y_{2} = 85$$

$$\begin{bmatrix}
0.8 & -0.1 & 0 \\
0 & 0.7 & -0.1 \\
-0.1 & -0.1 & 0.8
\end{bmatrix} \begin{bmatrix}
140 \\
X_{2} \\
200
\end{bmatrix} = \begin{bmatrix}
Y_{1} \\
85 \\
Y_{3}
\end{bmatrix}$$

$$0.8 \cdot 140 - 0.1 \cdot X_{2} + 0 \cdot 200 \\
0 \cdot 140 + 0.7 \cdot X_{2} - 0.1 \cdot 200 \\
-0.1 \cdot 140 - 0.1 \cdot X_{2} + 0.8 \cdot 200
\end{bmatrix} \begin{bmatrix}
112 - 0.1X_{2} \\
0.7X_{2} - 20 \\
146 - 0.1X_{2}
\end{bmatrix} = \begin{bmatrix}
Y_{1} \\
85 \\
Y_{3}
\end{bmatrix}$$

$$112 - 0.1X_{2} = Y_{1} \xrightarrow{\text{www}} Y_{1} = 112 - 0.1 \cdot 150$$

$$0.7X_{2} - 20 = 85 \xrightarrow{\text{www}} Y_{2} = 105$$

$$146 - 0.1X_{2} = Y_{3} \xrightarrow{\text{www}} Y_{3} = 146 - 0.1 \cdot 150$$

$$Y_{3} = 131$$

b) $X_1 =$

b)
$$X_1 = X_{11}$$

b)
$$X_1 = X_{11} + X_{12}$$

b)
$$X_1 = X_{11} + X_{12} + X_{13}$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 $X_1 - Y_1 =$ dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji

se troši u procesu reprodukcije

 $X_1 - Y_1 = 140 - 97$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_1 - Y_1 = 140 - 97 = 43$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 =$$

$$X_1 - Y_1 = 140 - 97 = 43$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 = X_{21}$$

$$X_1 - Y_1 = 140 - 97 = 43$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 = X_{21} + X_{22}$$

$$X_1 - Y_1 = 140 - 97 = 43$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 = X_{21} + X_{22} + X_{23}$$

$$X_1 - Y_1 = 140 - 97 = 43$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

$$X_1 - Y_1 = 140 - 97 = 43$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

$$X_1 - Y_1 = 140 - 97 = 43$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

$$X_1 - Y_1 = 140 - 97 = 43$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

$$X_1 - Y_1 = 140 - 97 = 43$$

$$X_2 - Y_2 =$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

se troši u procesu reprodukcije

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$
o proizvodnje drugog sektora

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_1 - Y_1 = 140 - 97 = 43$$

$$X_2 - Y_2 = 150 - 85$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$
o proizvodnie drugog sektora

$$X_1 - Y_1 = 140 - 97 = 43$$

$$X_2 - Y_2 = 150 - 85 = 65$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
die proizvodnie prvog sektora k

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 =$$

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 = X_{31}$$

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 = X_{31} + X_{32}$$

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 = X_{31} + X_{32} + X_{33}$$

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 = X_{31} + X_{32} + X_{33} + Y_3$$

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 = X_{31} + X_{32} + X_{33} + Y_3$$

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 = X_{31} + X_{32} + X_{33} + Y_3$$

dio proizvodnje trećeg sektora koji se troši u procesu reprodukcije

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 = X_{31} + X_{32} + X_{33} + Y_3$$

dio proizvodnje trećeg sektora koji se troši u procesu reprodukcije

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

$$X_3 - Y_3 =$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 = X_{31} + X_{32} + X_{33} + Y_3$$

dio proizvodnje trećeg sektora koji se troši u procesu reprodukcije

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

$$X_3 - Y_3 = 200 - 131$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$

dio proizvodnje drugog sektora koji se troši u procesu reprodukcije

$$X_3 = X_{31} + X_{32} + X_{33} + Y_3$$

dio proizvodnje trećeg sektora koji se troši u procesu reprodukcije

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

$$X_3 - Y_3 = 200 - 131 = 69$$

b)
$$X_1 = X_{11} + X_{12} + X_{13} + Y_1$$
 dio proizvodnje prvog sektora koji se troši u procesu reprodukcije

$$X_2 = X_{21} + X_{22} + X_{23} + Y_2$$
dio proizvodnje drugog sektora koji

se troši u procesu reprodukcije

$$X_3 = X_{31} + X_{32} + X_{33} + Y_3$$
dio proizvodnje trećeg sektora koji se troši u procesu reprodukcije

$$X_1 - Y_1 = 140 - 97 = 43$$

Od ukupne proizvodnje prvog sektora u procesu reprodukcije troše se 43 jedinice.

$$X_2 - Y_2 = 150 - 85 = 65$$

Od ukupne proizvodnje drugog sektora u procesu reprodukcije troši se 65 jedinica.

$$X_3 - Y_3 = 200 - 131 = 69$$

Domaća zadaća

Napravite međusektorsku tablicu.

	X_{ij}			Y_i	X_i
	1	2	3	1 ;	λ_i
1	28	15	0	97	140
2	0	45	20	85	150
3	14	15	40	131	200