8\_15

	B1	B2	В3	B4	B5	ai
A1	8	8	6	7	8	300
AI	100	200				
A2	6	7	8	9	8	200
AZ		200				
A3	7	8	9	9	6	200
AS		0	200			
A4	7	7	8	8	8	200
A4			0	200		
A5	7	7	8	7	8	400
AS				100	300	
bj	100	400	200	300	300	1300

f	10300
БК	7

Метод минимального элемента	ì
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	B1	B2	В3	B4	B5	ai
A1	8	8	6	7	8	300
Al			200	100	0	
A2	6	7	8	9	8	200
A2	100				100	
A3	7	8	9	9	6	200
AS					200	
A4	7	7	8	8	8	200
A4				200		
A5	7	7	8	7	8	400
AJ		400		0		
bj	100	400	200	300	300	1300

1 шаг	2 шаг	3 шаг		
min 6	min 7	min 8		

f	8900
БК	7

		N	<b>Метод</b> Фогел	Я		
	B1	B2	В3	B4	B5	ai
A1	8	8	6	7	8	300
AI			200 (1)	100 (5)	0	1,1,1,1, <b>1,</b>
A2	6	7	8	9	8	200
AZ	100 (3)				100	1,1,1,1,1,1
A3	7	8	9	9	6	200
AS					200 (2)	1,1,
A4	7	7	8	8	8	200
<i>P</i> <b>14</b>		200 (4)				0, 0, 0, 1,
A5	7	7	8	7	8	400
AS		200 (7)		200 (6)		0, 0, 0, 0, 0, 0, 1
bj	100	400	200	300	300	1300
	1,1, <b>1,</b>	0, 0, 0, 0, 0, 0, 0	2,	0, 0, 0, 0, 0, 2	2, <b>2</b> , 0, 0, 0, 0, 0	

f	8700
БК	8

## Метод потенциалов по ММЭ

		B1		B2		В3		B4		B5		ai	alpha i
A1	6	8	7			6		7	7		8	300	0
AI						200		100		0			U
A2		6	7		6	8	7	ç	)		8	200	0
AZ		100								100			U
A3	4	7	5		4	9	5	ç	)		6	200	-2
AJ										200			-2
A4	7	7	8		7	8			B	9		200	1
Α4								200		•			1
A5	6	7		7	6	8		7	7	8		400	0
AJ				<b>100</b>				0					U
bj		100		400		200		300	)	30	00	1300	•
beta j		6		7		6		7	7		8		
•	N	M+N-1		9		·		·		·			

	cij	beta j	alpha i
I	6	beta 3	alpha 1
]	7	beta 4	alpha 1
]	8	beta 5	alpha 1
] $alpha 1 = 0$	6	beta 1	alpha 2
I	8	beta 5	alpha 2
I	6	beta 5	alpha 3
I	8	beta 4	alpha 4
I	7	beta 2	alpha 5
Ţ	7	beta 4	alpha 5

200

-1

x44 min q42

2	7
ļ	7
	_

ſ	alpha i	beta j	cij
I	0	6	6
	0	7	7
	0	8	8
)[	0	6	6
	0	8	8
	-2	8	6
	1	7	8
	0	7	7
	0	7	7

alpha 1	0
alpha 2	0
alpha 3	-2
alpha 4	1
alpha 5	0
beta 1	6
beta 2	7
beta 3	6
beta 4	7
beta 5	8
·	

		B1		B2		В3		B4		B5	ai	alpha i
A1	6	8	7			6		7		8	300	0
Al						200		100		0		U
A2		6	7		6	8	7	9		8	200	0
AZ		100							1	100		U
A3	4	7	5		4	9	5	9		6	200	-2
AS									( )	200		-2
A4	6	7		7	6	8	7	8	8		200	0
A4				200								U
A5	6	7		7	6	8		7	8		400	0
A3				200				200				U
bj		100		400		200		300		300	1300	
beta j		6		7		6		7	•	8		

alpha i	beta j	cij
alpha 1	beta 3	6
alpha 1	beta 4	7
alpha 1	beta 5	8
alpha 2	beta 1	6
alpha 2	beta 5	8
alpha 3	beta 5	6
alpha 4	beta 2	7
alpha 5	beta 2	7
alpha 5	beta 4	7

	alpha i	beta j	cij
	0	6	6
	0	7	7
	0	8	8
0	0	6	6
	0	8	8
	-2	8	6
	0	7	7
	0	7	7
	0	7	7

alpha 1 =

f 8700

alpha 1	0
alpha 2	0
alpha 3	-2
alpha 4	0
alpha 5	0
beta 1	6
beta 2	7
beta 3	6
beta 4	7
beta 5	8

8\_44

	B1	B2	В3	B4	B5	ai
A1	4	5	6	6	4	250
A2	3	3	6	5	7	300
A3	5	6	7	7	4	350
A4	7	6	4	4	7	300
A5	6	5	6	7	6	250
bi	300	324	336	348	432	

 Sbi
 1740

 Sai
 1450

Sai <

Sbi

Kb 0,83333333

	B1	B2	В3	B4	B5	ai
A1	4	5	6	6	4	250
A2	3	3	6	5	7	300
A3	5	6	7	7	4	350
A4	7	6	4	4	7	300
A5	6	5	6	7	6	250
Kb*bi	250	270	280	290	360	

Sbi	1450
Sai	1450

Sai

Sbi

		Метод с	еверо-западн	ого угла		
	B1	B2	В3	B4	B5	ai
A1	4	5	6	6	4	250
AI	250					
A2	3	3	6	5	7	300
AZ		270	30			
A3	5	6	7	7	4	350
AS			250	100		
A4	7	6	4	4	7	300
A4				190	110	
A5	6	5	6	7	6	250
					250	
Kb*bi	250	270	280	290	360	

f 7470

## Метод минимального элемента

	B1	B2	В3	B4	B5	ai
A1	4	5	6	6	4	250
Al	220		20		10	
A2	3	3	6	5	7	300
AZ	30	270				
A3	5	6	7	7	4	350
AS					350	
A4	7	6	4	4	7	300
A4			10	290		
A5	6	5	6	7	6	250
AJ			250			
Kb*bi	250	270	280	290	360	·

 1 шаг
 2 шаг
 3 шаг

 min 3
 min 4
 min 6

f 6040

## Метод Фогеля

	B1	B2	В3	B4	B5	ai
A1	4	5	6	6	4	250
AI	220 (6)		20 (9)		10 (7)	0, 0, 0, 0, 0, 0, 2
A2	3	3	6	5	7	300
A2	30 (2)	270 (1)				0, <b>2</b> ,
A3	5	6	7	7	4	350
AS					350 (5)	1, 1, 1, 1, <b>1,</b>
A4	7	6	4	4	7	300
<i>P</i> <b>1</b> 4			10 (4)	290 (3)		0, 0, 0, <b>3</b> ,
A5	6	5	6	7	6	250
A3			250 (8)			1, 0, 0, 0, 0, 0, 0
Kb*bi	250	270	280	290	360	
	1, 1, 1, 1, 1, <b>2</b> ,	2,	2, 2, 2, 2, 0, 0, 0,	1, 1, <b>2</b> ,	0, 0, 0, 0, 0, 2, 2	

f 6040

		Метод	потенциалов	по МФ			_
	B1	B2	В3	B4	B5	ai	
A1	4	5 (4)	6	6 (6)	4	250	0
AI	220 (6)		20 (9)		10 (7)		U
A2	3	3	6 (5)	5 (5)	7 (3)	300	-1
AZ	30 (2)	270 (1)					-1
A3	5 (4)	6 (4)	7 (6)	7 (6)	4	350	0
AS					350 (5)		U
A4	7 (2)	6 (2)	4	4	7 (2)	300	-2
A4			10 (4)	290 (3)			-2
A5	6 (4)	5 (4)	6	7 (6)	6 (4)	250	0
AS			250 (8)				U
Kb*bi	250	270	280	290	360		
	4	4	6	6	4		•

			_
alpha i	beta j	cij	
alpha 1	beta 1	4	
alpha 1	beta 3	6	
alpha 1	beta 5	4	
alpha 2	beta 1	3	] $alpha 1 = 0$
alpha 2	beta 2	3	
alpha 3	beta 5	4	
alpha 4	beta 3	4	
alpha 4	beta 4	4	
alpha 5	beta 3	6	

	alpha i	beta j	cij
	0	4	4
	0	6	6
	0	4	4
)	-1	4	3
	-1	4	3
	0	4	4
	-2 -2	6	4
	-2	6	4
	0	6	6

alpha 1	0
alpha 2	-1
alpha 3	0
alpha 4	-2
alpha 5	0
beta 1	4
beta 2	4
beta 3	6
beta 4	6
beta 5	4

		Метод п	отенциалов і	по МС-ЗУ			
	B1	B2	В3	B4	B5	ai	alpha i
A1	4	5	8	8	11	250	0
Al	250	0			4		0
A2	2	3	Ę	6	9	300	-2
AΔ		270	30				-2
A3	3	4	7		10	350	-1
AS			250	100			-1
A4	0	1	4	4	7	300	-4
A4				190	110		-4
A5	-1'	0	3	3	6	250	-5
AJ					250		-3
Kb*bi	250	270	280	290	360		
beta j	4	5	8	8	11		•
	M+N-1	9		_		•	

alpha i	beta j	cij
alpha 1	beta 1	4
alpha 1	beta 2	5
alpha 2	beta 2	3
alpha 2	beta 3	6
alpha 3	beta 3	7
alpha 3	beta 4	7
alpha 4	beta 4	4
alpha 4	beta 5	7
alpha 5	beta 5	6

ı	]	alpha	1	=	0	

	alpha i	beta j	cij
	0	4	4
	0	5	5
	-2	5	3
)	-2	8	6
	-1	8	7
	-1	8	7
	-4	8	4
	-4	11	7
	-5	11	6

x12 min	0
q15	-7

alpha 1	0
alpha 2	-2
alpha 3	-1
alpha 4	-4
alpha 5	-5
beta 1	4
beta 2	5
beta 3	8
beta 4	8
beta 5	11

	B1	B2	В3	B4	B5	ai	alpha i
A1	4	-2'	1	1	4	250	0
AI	250				0		U
A2	9	3	6	6	9	300	5
AZ		270	30				,
A3	10	4	7	7	10	350	6
AJ			250	100	-		0
A4	7	1	4	4	7	300	3
A4				190	110		J
A5	6	0	3	3	6	250	2
AJ					250		2
Kb*bi	250	270	280	290	360		_
beta j	4	-2	1	1	4		

alpha i	beta j	cij
alpha 1	beta 1	4
alpha 1	beta 5	4
alpha 2	beta 2	3
alpha 2	beta 3	6
alpha 3	beta 3	7
alpha 3	beta 4	7
alpha 4	beta 4	4
alpha 4	beta 5	7
alpha 5	beta 5	6

1	alpha	1	=0
J	arpiia	-	0

	alpha 1	beta j	CIJ
	0	4	4
	0	4	4
	5	-2	3
)	5	1	6
	6	1	7
	6	1	7
	3	1	4
	3	4	7
	2	4	6

x34 min	100	
q35	-6	

0
5
6
3
2
4
-2
1
1
4

	B1	B2	В3	B4	B5	ai	alpha i
A1	4	4	7	1	4	250	0
AI	250				0		U
A2	3	3	6	0	3	300	-1
AZ		270	30				-1
A3	4	4	7	1	4	350	0
AS			250		100		U
A4	7	7	10	4	_7	300	3
A4			1	290	10		3
A5	6	6	9	3	6	250	2
AJ					250		2
Kb*bi	250	270	280	290	360		
beta j	4	4	7	1	4		•

alpha i	beta j	cij
alpha 1	beta 1	4
alpha 1	beta 5	4
alpha 2	beta 2	3
alpha 2	beta 3	6
alpha 3	beta 3	7
alpha 3	beta 5	4
alpha 4	beta 4	4
alpha 4	beta 5	7
alpha 5	beta 5	6

x45 min	10
q43	-6

	alpha i	beta j	cij
	0	4	4
I	0	4	4
I	-1	4	3
] $alpha 1 = 0$	-1	7	6
]	0	7	7
<u> </u>	0	4	4
	3	1	4
]	3	4	7
]	2	4	6

alpha 1	0
alpha 2	-1
alpha 3	0
alpha 4	3
alpha 5	2
beta 1	4
beta 2	4
beta 3	7
beta 4	1
beta 5	4