

3 problems, 3 sources, 4 destinations

### Task 1

	Destinations				supply	
	1	2	3	4		
sources	1	464	513	654	867	75
	2	352	416	690	791	125
	3	995	682	388	685	100
		80	65	70	85	

1) Northwest Total cost: 165545

$$\begin{array}{r} 125 \\ + 50 \\ \hline 175 \end{array}$$

	1	2	3	4	supply	
sources	1	464 <sup>+5</sup>	513	654	867	75
	2	352 <sup>5</sup>	416 <sup>65</sup>	690 <sup>55</sup>	791	125
	3	995	682	388 <sup>15</sup>	685 <sup>85</sup>	100
		80	65	70	85	

$$\begin{array}{r} 70 \\ - 55 \\ \hline 15 \\ \downarrow \\ 100 \\ - 15 \\ \hline 85 \end{array}$$

2) Vogel Total cost: 152535

Destinations

	1	2	3	4	supply				
sources	1	464	IV 513 <sup>20</sup>	VI 654	VII 867 <sup>55</sup>	75	49	75	max 354
	2	II 352 <sup>80</sup>	III 416 <sup>45</sup>	V 690	VIII 791	125	64	64	max 375
	3	995	682	I 388 <sup>+10</sup>	IV 685 <sup>30</sup>	100 <sup>30</sup>	(294)	3	3
		80	65	70	85				
		112	97	266	106				

max 192

867

685

97

106

169

182

182

3. Russel Total cost: 152535

		Destinations				
		1	2	3	4	Supply
Sources	1	995	882	690	867	
	2	867 +91	464 -1398	513 1036 NO	654 903	75
	3	351 -1450 80	416 1057 NO	690 991	867 -864 NO	145
		995 995-995	682 -995	380 9740	791 -1477	100
		80+	65+	70+	85	

Task

		Destinations				
		1	2	3	4	Supply
Sources	1	3	1	7	4	300
	2	2	6	5	9	400
	3	8	3	3	2	500
		200	350	400	200	1200

1. North west Total cost 4400

		Destinations				
		1	2	3	4	Supply
Sources	1	3 250	1 50	7	4	300
	2	2	6 300	5 100	9	400
	3	8	3 300	2 200	500	1200
		200	350	400	200	1200

1. Vogel Total cost: 2850

		Destinations				
		1	2	3	4	Supply
Sources	1	3	2	7	4	300
	2	I 2 250	IV 300	V 150	VI 500	400
	3	8	IV 350	V 250	III 200	500
		200	350	400	200	1200
		1	2	2	2	
		-	3	2	(7) max	
		-	3 max	2	2 max	
		-	-	2	-	

3. Russel Total cost: 2900

Destinations						
				supply		
Sources		1	2	3	4	
1	2	8 1	3 -12	7 -7	9 -12	300
2	1	-15	300 1 -12	50 6 -9	100 5 -11	400 100
3	8	2 -8	-3 -14	300 3 -12	400 2 -15	500 300
		200	350	400	200	1200

Task 3

Destinations						
					supply	
Sources		1	2	3	4	
1	15	9	13	11	7	
2	11	1M	17	6	5	
3	9	11	9	4	3	
	7	2	5	1		

1. Northwest Total cost: 2000 + 72

Destinations						
					supply	
Sources		1	2	3	4	
1	15	+	9	13	11	7
2	11	1M	2	17	6	5
3	9	11	9	4	1	3
	7	2	5	1		

d. Vogel Total cost: 160

Destinations						
					supply	
Sources		1	2	3	4	
1	15	V	9 2	13 5	11	7
2	11	14 4	1M	-17	I 6 1	5
3	9	3 9	11	9	4	3
	7	2	5	1		
	2	2	4	2		
	2	2	4	-		
spur u1 wonnen	(6) max	2	4	-		
	-	9	9	13 max	-	

3. Russel Total cost: 160

		Destinations				Supply
		1	2	3	4	
Sources	1	15	15 -15	17	11	
	2	4 -1M = 4 -1M	9 -1M = -6 -1M	11 -1M = -17 -1M	11 -1M = -19 -1M	7 -5 -1M
3	3 -17	9 -17	11 -1M	9 -19	4 -11	3
	7	2	5	1		

однобр. и конечка 3  
старина 1