

## APPENDIX

## Appendix A. LINDO result of Model A at risk aversion of 0.9

LP OPTIMUM FOUND AT STEP 13

OBJECTIVE FUNCTION VALUE

VARIABLE	VALUE	REDUCED COST	ROW	SLACK OR SURPLUS	DUAL PRICE
1)	7,592.21				
X01	8.97	0.00	2)	0.00	1,125.00
X02	0.00	97.46	3)	29.07	0.00
X03	3.03	0.00	4)	20.70	0.00
X04	20,923.11	0.00	5)	24.83	0.00
X05	0.00	150.00	6)	39.44	0.00
X06	0.00	162.00	7)	35.48	0.00
X07	0.00	150.00	8)	36.23	0.00
X08	0.00	162.00	9)	35.28	0.00
X09	0.00	162.00	10)	39.79	0.00
X10	0.00	162.00	11)	17.49	0.00
X11	0.00	162.00	12)	28.46	0.00
X12	0.00	162.00	13)	26.75	0.00
X13	0.00	150.00	14)	36.88	0.00
X14	0.00	162.00	15)	0.00	0.00
X15	0.00	162.00	16)	0.00	0.08
X16	0.00	162.00	17)	9,076.89	0.00
X23	3,717.40	0.00	18)	0.00	-0.41
X17	4,021.09	0.00	19)	0.00	-0.41
X18	3,268.99	0.00	20)	0.00	-0.41
X19	776.67	0.00	21)	0.00	-0.08
X20	0.00	0.33	22)	5,315.90	0.00
X21	0.00	0.41	23)	3,124.55	0.00
X22	0.00	0.41	24)	0.00	0.41
			25)	584.26	0.00

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NO. ITERATIONS=13

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**Appendix A. LINDO result of Model A at risk aversion of 0.9 (cont'd)****RANGES IN WHICH THE BASIS IS UNCHANGED:**

VARIABLE	OBJ	COEFFICIENT		RANGES		RIGHTHAND	SIDE		RANGES
	CURRENT	ALLOWABLE	ALLOWABLE	ALLOWABLE	ROW	CURRENT	ALLOWABLE	ALLOWABLE	
	COEF	INCREASE	DECREASE	DECREASE	RHS	INCREASE	DECREASE		
X01	1,695.00	41.47	85.70	2)	12.00	5.21	4.43		
X02	1,376.00	97.46	INFINITY	3)	38.85	INFINITY	29.07		
X03	1,094.00	167.43	41.47	4)	41.44	INFINITY	20.70		
X04	-0.08	0.08	0.29	5)	38.86	INFINITY	24.83		
X05	-150.00	150.00	INFINITY	6)	41.45	INFINITY	39.44		
X06	-150.00	162.00	INFINITY	7)	38.86	INFINITY	35.48		
X07	-150.00	150.00	INFINITY	8)	38.86	INFINITY	36.23		
X08	-150.00	162.00	INFINITY	9)	38.86	INFINITY	35.28		
X09	-150.00	162.00	INFINITY	10)	41.45	INFINITY	39.79		
X10	-150.00	162.00	INFINITY	11)	38.86	INFINITY	17.49		
X11	-150.00	162.00	INFINITY	12)	38.86	INFINITY	28.46		
X12	-150.00	162.00	INFINITY	13)	38.86	INFINITY	26.75		
X13	-150.00	150.00	INFINITY	14)	41.45	INFINITY	36.88		
X14	-150.00	162.00	INFINITY	15)	0.00	0.00	INFINITY		
X15	-150.00	162.00	INFINITY	16)	0.00	20,923.11	0.00		
X16	-150.00	162.00	INFINITY	17)	30,000.00	INFINITY	9,076.89		
X23	-0.90	0.06	0.27	18)	0.00	INFINITY	4,021.09		
X17	0.00	0.41	0.24	19)	0.00	INFINITY	3,268.99		
X18	0.00	0.05	0.19	20)	0.00	INFINITY	776.67		
X19	0.00	0.06	0.25	21)	0.00	562.66	586.04		
X20	0.00	0.33	INFINITY	22)	0.00	5,315.90	INFINITY		
X21	0.00	0.41	INFINITY	23)	0.00	3,124.55	INFINITY		
X22	0.00	0.41	INFINITY	24)	0.00	8,066.75	INFINITY		
				25)	1,000.00	584.26	INFINITY		

Source: Calculation

**Appendix B. LINDO result of Model B at risk aversion of 0.9**

LP OPTIMUM FOUND AT STEP 10

OBJECTIVE FUNCTION VALUE

VARIABLE	VALUE	REDUCED COST	ROW	SLACK OR SURPLUS	DUAL PRICE
1)	14,416.18				
X01	0.95	0.00	2)	0.00	1,113.07
X02	5.69	0.00	3)	31.55	0.00
X03	5.36	0.00	4)	13.69	0.00
X04	22,383.85	0.00	5)	16.46	0.00
X05	0.00	150.00	6)	37.77	0.00
X06	0.00	162.00	7)	33.59	0.00
X07	0.00	150.00	8)	33.25	0.00
X08	0.00	162.00	9)	34.14	0.00
X09	0.00	162.00	10)	38.92	0.00
X10	0.00	162.00	11)	30.04	0.00
X11	0.00	162.00	12)	0.00	27.26
X12	0.00	162.00	13)	27.82	0.00
X13	0.00	150.00	14)	21.13	0.00
X14	0.00	134.74	15)	0.00	0.00
X15	0.00	162.00	16)	0.00	0.08
X16	0.00	162.00	17)	7,616	0.00
X23	3,321.64	0.00	18)	0.00	-0.20
X17	0.00	0.21	19)	2,602.12	0.00
X18	0.00	0.41	20)	0.00	-0.41
X19	285.73	0.00	21)	0.00	-0.41
X20	6,922.22	0.00	22)	291.10	0.00
X21	0.00	0.41	23)	3,440.74	0.00
X22	0.00	0.41	24)	0.00	0.41
			25)	1,801.75	0.00

NO. ITERATIONS= 10

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**Appendix B. LINDO result of Model B at risk aversion of 0.9 (cont'd)****RANGES IN WHICH THE BASIS IS UNCHANGED:**

VARIABLE	OBJ	COEFFICIENT	RANGES	RIGHTHAND	SIDE	RANGES
	CURRENT COEF	ALLOWABLE INCREASE	ALLOWABLE DECREASE	CURRENT RHS	ALLOWABLE INCREASE	ALLOWABLE DECREASE
X01	1,375.00	146.19	251.99	2)	12.00	1.76 0.64
X02	1,653.00	330.06	100.81	3)	38.85	INFINITY 31.55
X03	1,583.00	144.92	140.24	4)	41.44	INFINITY 13.69
X04	-0.08	0.08	0.64	5)	38.86	INFINITY 16.46
X05	-150.00	150.00	INFINITY	6)	41.45	INFINITY 37.77
X06	-150.00	162.00	INFINITY	7)	38.86	INFINITY 33.59
X07	-150.00	150.00	INFINITY	8)	38.86	INFINITY 33.25
X08	-150.00	162.00	INFINITY	9)	38.86	INFINITY 34.14
X09	-150.00	162.00	INFINITY	10)	41.45	INFINITY 38.92
X10	-150.00	162.00	INFINITY	11)	38.86	INFINITY 30.04
X11	-150.00	162.00	INFINITY	12)	38.86	2.20 4.97
X12	-150.00	162.00	INFINITY	13)	38.86	INFINITY 27.82
X13	-150.00	150.00	INFINITY	14)	41.45	INFINITY 21.13
X14	-150.00	134.74	INFINITY	15)	0.00	0.00 INFINITY
X15	-150.00	162.00	INFINITY	16)	0.00	22,383.85 0.00
X16	-150.00	162.00	INFINITY	17)	30,000.00	INFINITY 7,616.15
X23	-0.90	0.57	0.91	18)	0.00	980.20 1,138.09
X17	0.00	0.21	INFINITY	19)	0.00	2,602.12 INFINITY
X18	0.00	0.41	INFINITY	20)	0.00	INFINITY 285.73
X19	0.00	0.41	0.47	21)	0.00	INFINITY 6,922.22
X20	0.00	0.41	2.02	22)	0.00	291.10 INFINITY
X21	0.00	0.41	INFINITY	23)	0.00	3,440.74 INFINITY
X22	0.00	0.41	INFINITY	24)	0.00	7,207.95 INFINITY
				25)	1,000.00	1,801.75 INFINITY

Source: Calculation

**Appendix C. LINDO result of Model C at risk aversion of 0.9**

LP OPTIMUM FOUND AT STEP 18

OBJECTIVE FUNCTION VALUE

VARIABLE	VALUE	REDUCED COST	ROW	SLACK OR SURPLUS	DUAL PRICE
1)	14,416.18				
X01	4.12	0.00	2)	0.00	1,169.20
X02	0.00	31.93	3)	34.28	0.00
X03	1.88	0.00	4)	24.10	0.00
X04	14,035.88	0.00	5)	33.37	0.00
X05	0.00	150.00	6)	38.42	0.00
X06	0.00	162.00	7)	35.08	0.00
X07	0.00	150.00	8)	35.68	0.00
X08	0.00	162.00	9)	35.11	0.00
X09	0.00	162.00	10)	38.82	0.00
X10	0.00	162.00	11)	29.60	0.00
X11	0.00	162.00	12)	32.19	0.00
X12	0.00	162.00	13)	24.41	0.00
X13	0.00	150.00	14)	36.73	0.00
X14	0.00	162.00	15)	0.00	0.00
X15	0.00	162.00	16)	0.00	0.08
X16	0.00	162.00	17)	15,964.12	0.00
X23	1,553.00	0.00	18)	0.00	-0.41
X17	1,870.13	0.00	19)	0.00	-0.41
X18	1,100.38	0.00	20)	0.00	-0.41
X19	222.05	0.00	21)	0.00	-0.41
X20	192.98	0.00	22)	2,377.60	0.00
X21	0.00	0.41	23)	1,229.37	0.00
X22	0.00	0.41	24)	0.00	0.41
			25)	0.00	-0.24

NO. ITERATIONS= 18

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**Appendix C. LINDO result of Model C at risk aversion of 0.9 (cont'd)****RANGES IN WHICH THE BASIS IS UNCHANGED:**

VARIABLE	OBJ	COEFFICIENT RANGES		RIGHTHAND CURRENT	SIDE	RANGES	
	ALLOWABLE	ALLOWABLE	ALLOWABLE			ALLOWABLE	
	COEF	INCREASE	DECREASE	RHS	INCREASE	DECREASE	
X01	1,716.00	INFINITY	31.93	2)	6.00	1.46	0.87
X02	1,502.00	31.93	INFINITY	3)	38.85	INFINITY	34.28
X03	1,186.00	125.36	INFINITY	4)	41.44	INFINITY	24.10
X04	-0.08	0.08	0.51	5)	38.86	INFINITY	33.37
X05	-150.00	150.00	INFINITY	6)	41.45	INFINITY	38.42
X06	-150.00	162.00	INFINITY	7)	38.86	INFINITY	35.08
X07	-150.00	150.00	INFINITY	8)	38.86	INFINITY	35.68
X08	-150.00	162.00	INFINITY	9)	38.86	INFINITY	35.11
X09	-150.00	162.00	INFINITY	10)	41.45	INFINITY	38.82
X10	-150.00	162.00	INFINITY	11)	38.86	INFINITY	29.60
X11	-150.00	162.00	INFINITY	12)	38.86	INFINITY	32.19
X12	-150.00	162.00	INFINITY	13)	38.86	INFINITY	24.41
X13	-150.00	150.00	INFINITY	14)	41.45	INFINITY	36.73
X14	-150.00	162.00	INFINITY	15)	0.00	0.00	INFINITY
X15	-150.00	162.00	INFINITY	16)	0.00	14,035.88	0.00
X16	-150.00	162.00	INFINITY	17)	30,000.00	INFINITY	15,964.12
X23	-0.90	0.90	0.14	18)	0.00	INFINITY	1,870.13
X17	0.00	0.41	0.10	19)	0.00	INFINITY	1,100.38
X18	0.00	0.41	0.15	20)	0.00	INFINITY	222.05
X19	0.00	0.41	0.18	21)	0.00	INFINITY	192.98
X20	0.00	0.24	0.22	22)	0.00	2,377.60	INFINITY
X21	0.00	-0.41	INFINITY	23)	0.00	1,229.37	INFINITY
X22	0.00	-0.41	INFINITY	24)	0.00	3,385.54	INFINITY
				25)	1,000.00	168.53	195.84

Source: Calculation

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**Appendix D. LINDO result of Model D at risk aversion of 0.9**

LP OPTIMUM FOUND AT STEP 6

OBJECTIVE FUNCTION VALUE

VARIABLE	VALUE	REDUCED COST	ROW	SLACK OR SURPLUS	DUAL PRICE
1)	7,592.21				
X01	1.52	0.00	2)	0.00	1,299.19
X02	2.61	0.00	3)	34.77	0.00
X03	1.88	0.00	4)	23.63	0.00
X04	14,695.20	0.00	5)	32.95	0.00
X05	0.00	150.00	6)	39.07	0.00
X06	0.00	162.00	7)	36.02	0.00
X07	0.00	150.00	8)	36.49	0.00
X08	0.00	162.00	9)	36.42	0.00
X09	0.00	162.00	10)	39.60	0.00
X10	0.00	162.00	11)	34.70	0.00
X11	0.00	162.00	12)	22.78	0.00
X12	0.00	162.00	13)	30.71	0.00
X13	0.00	150.00	14)	30.84	0.00
X14	0.00	162.00	15)	0.00	0.00
X15	0.00	162.00	16)	0.00	0.08
X16	0.00	162.00	17)	15,304.80	0.00
X23	1,518.98	0.00	18)	608.57	0.00
X17	0.00	0.41	19)	421.09	0.00
X18	0.00	0.41	20)	0.00	-0.09
X19	0.00	0.32	21)	0.00	-0.41
X20	3,296.18	0.00	22)	135.28	0.00
X21	0.00	0.41	23)	1,226.69	0.00
X22	0.00	0.41	24)	0.00	0.41
			25)	0.00	-0.20

NO. ITERATIONS= 6

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**Appendix D. LINDO result of Model D at risk aversion of 0.9 (cont'd)****RANGES IN WHICH THE BASIS IS UNCHANGED:**

VARIABLE	OBJ	COEFFICIENT	RANGES	RIGHTHAND	SIDE	RANGES
	CURRENT	ALLOWABLE	ALLOWABLE	CURRENT	ALLOWABLE	ALLOWABLE
	COEF	INCREASE	DECREASE	RHS	INCREASE	DECREASE
X01	1,694.00	15.27	52.91	2)	6.00	2.78 1.60
X02	1,747.00	52.91	15.27	3)	38.85	INFINITY 34.77
X03	1,605.00	108.01	INFINITY	4)	41.44	INFINITY 23.63
X04	-0.08	0.08	0.06	5)	38.86	INFINITY 32.95
X05	-150.00	150.00	INFINITY	6)	41.45	INFINITY 39.07
X06	-150.00	162.00	INFINITY	7)	38.86	INFINITY 36.02
X07	-150.00	150.00	INFINITY	8)	38.86	INFINITY 36.49
X08	-150.00	162.00	INFINITY	9)	38.86	INFINITY 36.42
X09	-150.00	162.00	INFINITY	10)	41.45	INFINITY 39.60
X10	-150.00	162.00	INFINITY	11)	38.86	INFINITY 34.70
X11	-150.00	162.00	INFINITY	12)	38.86	INFINITY 22.78
X12	-150.00	162.00	INFINITY	13)	38.86	INFINITY 30.71
X13	-150.00	150.00	INFINITY	14)	41.45	INFINITY 30.84
X14	-150.00	162.00	INFINITY	15)	0.00	0.00 INFINITY
X15	-150.00	162.00	INFINITY	16)	0.00	14,695.20 0.00
X16	-150.00	162.00	INFINITY	17)	30,000.00	INFINITY 15,304.80
X23	-0.90	0.56	0.79	18)	0.00	608.57 INFINITY
X17	0.00	0.41	INFINITY	19)	0.00	421.09 INFINITY
X18	0.00	0.41	INFINITY	20)	0.00	257.99 27.89
X19	0.00	0.32	INFINITY	21)	0.00	INFINITY 3,296.18
X20	0.00	0.41	0.36	22)	0.00	135.28 INFINITY
X21	0.00	0.41	INFINITY	23)	0.00	1,226.69 INFINITY
X22	0.00	0.41	INFINITY	24)	0.00	3,296.18 INFINITY
				25)	1,000.00	364.37 316.70

Source: Calculation

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**Appendix E. LINDO result of Model E at risk aversion of 0.9**

LP OPTIMUM FOUND AT STEP 8

OBJECTIVE FUNCTION VALUE

VARIABLE	VALUE	REDUCED COST	ROW	SLACK OR SURPLUS	DUAL PRICE
1)	14,800.47				
X01	2.97	0.00	2)	0.00	1,281.86
X02	7.12	0.00	3)	27.78	0.00
X03	1.91	0.00	4)	9.19	0.00
X04	22,181.69	0.00	5)	29.83	0.00
X05	0.00	150.00	6)	36.99	0.00
X06	0.00	162.00	7)	35.21	0.00
X07	0.00	150.00	8)	34.71	0.00
X08	0.00	162.00	9)	35.92	0.00
X09	0.00	162.00	10)	39.62	0.00
X10	0.00	162.00	11)	25.85	0.00
X11	0.00	162.00	12)	0.16	0.00
X12	0.00	162.00	13)	27.12	0.00
X13	0.00	150.00	14)	23.26	0.00
X14	0.00	162.00	15)	0.00	0.00
X15	0.00	162.00	16)	0.00	0.08
X16	0.00	162.00	17)	7,818.31	0.00
X23	2,574.44	0.00	18)	0.00	-0.41
X17	31.49	0.00	19)	0.00	-0.41
X18	128.88	0.00	20)	0.00	-0.41
X19	777.45	0.00	21)	0.00	-0.41
X20	4,674.47	0.00	22)	0.00	-0.18
X21	0.00	0.24	23)	5,736.03	0.00
X22	0.00	0.41	24)	0.00	0.41
			25)	0.00	-0.58

NO. ITERATIONS= 8

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**Appendix E. LINDO result of Model E at risk aversion of 0.9 (cont'd)****RANGES IN WHICH THE BASIS IS UNCHANGED:**

VARIABLE	OBJ	COEFFICIENT RANGES		RIGHTHAND CURRENT RHS	SIDE	RANGES	
	COEF	ALLOWABLE INCREASE	ALLOWABLE DECREASE			ALLOWABLE INCREASE	ALLOWABLE DECREASE
X01	1,695.00	153.99	203.56	2)	12.00	0.05	1.78
X02	1,653.00	203.56	153.99	3)	38.85	INFINITY	27.78
X03	1,094.00	304.31	INFINITY	4)	41.44	INFINITY	9.19
X04	-0.08	0.08	0.69	5)	38.86	INFINITY	29.83
X05	-150.00	150.00	INFINITY	6)	41.45	INFINITY	36.99
X06	-150.00	162.00	INFINITY	7)	38.86	INFINITY	35.21
X07	-150.00	150.00	INFINITY	8)	38.86	INFINITY	34.71
X08	-150.00	162.00	INFINITY	9)	38.86	INFINITY	35.92
X09	-150.00	162.00	INFINITY	10)	41.45	INFINITY	39.62
X10	-150.00	162.00	INFINITY	11)	38.86	INFINITY	25.85
X11	-150.00	162.00	INFINITY	12)	38.86	INFINITY	0.16
X12	-150.00	162.00	INFINITY	13)	38.86	INFINITY	27.12
X13	-150.00	150.00	INFINITY	14)	41.45	INFINITY	23.26
X14	-150.00	162.00	INFINITY	15)	0.00	0.00	INFINITY
X15	-150.00	162.00	INFINITY	16)	0.00	22,181.69	0.00
X16	-150.00	162.00	INFINITY	17)	30,000.00	INFINITY	7,818.31
X23	-0.90	0.65	1.06	18)	0.00	INFINITY	31.49
X17	0.00	0.27	0.36	19)	0.00	INFINITY	128.88
X18	0.00	0.26	0.35	20)	0.00	INFINITY	777.45
X19	0.00	0.41	0.53	21)	0.00	INFINITY	4,674.47
X20	0.00	0.28	0.21	22)	0.00	5,500.93	33.52
X21	0.00	0.24	INFINITY	23)	0.00	5,736.03	INFINITY
X22	0.00	0.41	INFINITY	24)	0.00	5,612.29	INFINITY
				25)	1,000.00	174.55	34.34

Source: Calculation

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**Appendix F. LINDO result of Model F at risk aversion of 0.9**

LP OPTIMUM FOUND AT STEP 8

OBJECTIVE FUNCTION VALUE

VARIABLE	VALUE	REDUCED COST	ROW	SLACK OR SURPLUS	DUAL PRICE
1)	7,058.03				
X01	1.77	0.00	2)	0.00	1,324.95
X02	2.35	0.00	3)	34.72	0.00
X03	1.88	0.00	4)	23.68	0.00
X04	14,629.89	0.00	5)	32.99	0.00
X05	0.00	150.00	6)	39.00	0.00
X06	0.00	150.00	7)	35.93	0.00
X07	0.00	150.00	8)	36.41	0.00
X08	0.00	150.00	9)	36.29	0.00
X09	0.00	150.00	10)	39.52	0.00
X10	0.00	150.00	11)	34.20	0.00
X11	0.00	150.00	12)	23.72	0.00
X12	0.00	150.00	13)	30.09	0.00
X13	0.00	150.00	14)	31.43	0.00
X14	0.00	150.00	15)	0.00	0.00
X15	0.00	150.00	16)	0.00	0.08
X16	0.00	150.00	17)	15,370.11	0.00
X23	1,271.79	0.00	18)	0.00	-0.41
X17	841.01	0.00	19)	0.00	-0.41
X18	101.60	0.00	20)	164.29	0.00
X19	0.00	0.41	21)	0.00	-0.41
X20	1,829.90	0.00	22)	0.00	-0.08
X21	0.00	0.33	23)	1,815.23	0.00
X22	0.00	0.41	24)	0.00	0.41
			25)	0.00	-0.89

NO. ITERATIONS= 8

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**Appendix F. LINDO result of Model F at risk aversion of 0.9 (cont'd)****RANGES IN WHICH THE BASIS IS UNCHANGED:**

VARIABLE	OBJ	COEFFICIENT	RANGES	RIGHTHAND	SIDE	RANGES
	CURRENT	ALLOWABLE	ALLOWABLE	CURRENT	ALLOWABLE	ALLOWABLE
	COEF	INCREASE	DECREASE	RHS	INCREASE	DECREASE
X01	1,716.00	79.51	338.56	2)	6.00	1.07 0.54
X02	1,747.00	338.56	79.51	3)	38.85	INFINITY 34.72
X03	1,186.00	474.59	INFINITY	4)	41.44	INFINITY 23.68
X04	-0.08	1.34	0.31	5)	38.86	INFINITY 32.99
X05	-150.00	150.00	INFINITY	6)	41.45	INFINITY 39.00
X06	-150.00	150.00	INFINITY	7)	38.86	INFINITY 35.93
X07	-150.00	150.00	INFINITY	8)	38.86	INFINITY 36.41
X08	-150.00	150.00	INFINITY	9)	38.86	INFINITY 36.29
X09	-150.00	150.00	INFINITY	10)	41.45	INFINITY 39.52
X10	-150.00	150.00	INFINITY	11)	38.86	INFINITY 34.20
X11	-150.00	150.00	INFINITY	12)	38.86	INFINITY 23.72
X12	-150.00	150.00	INFINITY	13)	38.86	INFINITY 30.09
X13	-150.00	150.00	INFINITY	14)	41.45	INFINITY 31.43
X14	-150.00	150.00	INFINITY	15)	0.00	0.00 INFINITY
X15	-150.00	150.00	INFINITY	16)	0.00	14,629.89 0.00
X16	-150.00	150.00	INFINITY	17)	30,000.00	INFINITY 15,370.11
X23	-0.90	0.87	5.59	18)	0.00	INFINITY 841.01
X17	0.00	0.18	0.77	19)	0.00	INFINITY 101.60
X18	0.00	0.19	0.80	20)	0.00	164.29 INFINITY
X19	0.00	0.41	INFINITY	21)	0.00	INFINITY 1,829.90
X20	0.00	0.41	0.11	22)	0.00	1,011.09 241.85
X21	0.00	0.33	INFINITY	23)	0.00	1,815.23 INFINITY
X22	0.00	0.41	INFINITY	24)	0.00	2,772.50 INFINITY
				25)	1,000.00	99.71 151.37

Source: Calculation

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