F74065050 邱凱琳 資訊 110 F74066080 游淳如 資訊 110 F74062078 資訊 110 F64054049 資訊 110 丁筠馨 黃姿涵

Can You Win at Gambling? – Group 23

Dataset

Even/Odd:

Probability: 18/38(win) 20/38(lose)

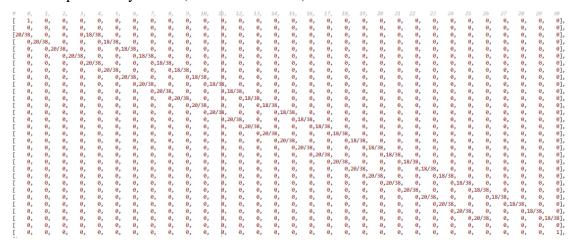
Trasition probability matrix(at most 20 dollars):

Red/Black:

Probability: 18/38(win) 20/38(lose)

Trasition probability matrix(at most 20 dollars):

#	0,	1,	2,	3,	4,	5,	6,	7,	8,	9,	10,	11,	12,	13,	14,	15,	16,	17,	18,	19,	20
]	1,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[:	20/38,	0,	0,	0,18	3/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,20	/38,	0,	0,	0,18	3/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[0,	0,20	0/38,	0,	0,	0,18/	/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,20	/38,	0,	0,	0,18	/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,20	3/38,	0,	0,	0,18	/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,20	9/38,	0,	0,	0,18	/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,20/	/38,	0,	0,	0,18	3/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,20	/38,	0,	0,	0,18	3/38,	0,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,	0,20	/38,	0,	0,	0,18	3/38,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,	0,	0,20	/38,	0,	0,	0,18	/38,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	0/38,	0,	0,	0,18	/38,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	0/38,	0,	0,	0,18	/38,	0,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	7/38,	0,	0,	0,18	3/38,	0,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	/38,	0,	0,	0,18	/38,	0,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	/38,	0,	0,	0,18	/38,	0,	0],
]	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	/38,	0,	0,	0,18	3/38,	0],
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	0/38,	0,	0,	0,18	3/38],
]	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
Ţ	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	1],

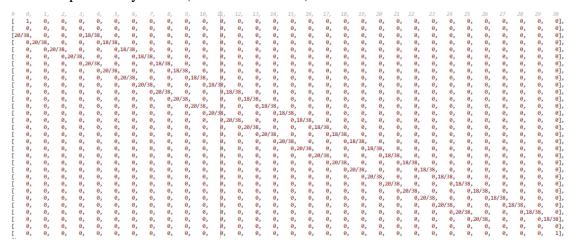


Low/High:

Probability: 18/38(win) 20/38(lose)

Trasition probability matrix(at most 20 dollars):

#	0,	1,	2,	3,	4,	5,	6,	7,	8,	9,	10,	11,	12,	13,	14,	15,	16,	17,	18,	19,	20
[1,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[2	20/38,	0,	0,	0,1	L8/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[0,2	0/38,	0,	0,	0,18	/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[0,	0,20	/38,	0,	0,	0,18	/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
]	0,	0,	0,20/	/38,	0,	0,	0,1	8/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[0,	0,	0,	0,2	20/38,	0,	0,	0,1	8/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[0,	0,	0,	0,	0,20	/38,	0,	0,	0,18	8/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
Ī	0,	0,	0,	0,	0,	0,20	/38,	0,	0,	0,1	8/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[0,	0,	0,	0,	0,	0,	0,2	0/38,	0,	0,	0,18	3/38,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[0,	0,	0,	0,	0,	0,	0,	0,20	0/38,	0,	0,	0,18	8/38,	0,	0,	0,	0,	0,	0,	0,	0],
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,20	0/38,	0,	0,	0,18	3/38,	0,	0,	0,	0,	0,	0,	0],
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,2	0/38,	0,	0,	0,18	3/38,	0,	0,	0,	0,	0,	0],
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	0/38,	0,	0,	0,18	3/38,	0,	0,	0,	0,	0],
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	0/38,	0,	0,	0,18	3/38,	0,	0,	0,	0],
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	0/38,	0,	0,	0,18	/38,	0,	0,	0],
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	9/38,	0,	0,	0,18	3/38,	0,	0],
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	7/38,	0,	0,	0,18	3/38,	0],
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,20	9/38,	0,	0,	0,18	3/38],
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0],
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	1],



Even&Red / Odd&Black:

Probability: 8/38(win 2/2) 20/38(win1/2) 10/38(lose)

Trasition probability matrix(at most 20 dollars):

#	0,	2,	4,	6,	8,	10,	12,	14,	16,	18,	20,	22,	24,	26,	28,	30
[1,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,],#0
[10	/38,20	/38, 8	/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,],#2
[0,10	/38,20	/38, 8,	/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,],#4
[0,	0,10	/38,20	/38,	8/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0 ,],#6
[0,	0,	0,10	/38,2	0/38,	8/38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,],#8
[0,	0,	0,	0,1	0/38,2	0/38, 8	38,	0,	0,	0,	0,	0,	0,	0,	0,	0,],#10
[0,	0,	0,	0,	0,1	0/38,20	/38,	8/38,	0,	0,	0,	0,	0,	0,	0,	0,],#12
[0,	0,	0,	0,	0,	0,10	/38,2	0/38,	8/38,	0,	0,	0,	0,	0,	0,	0,],#14
[0,	0,	0,	0,	0,	0,	0,1	.0/38,2	20/38,	8/38,	0,	0,	0,	0,	0,	0,],#16
[0,	0,	0,	0,	0,	0,	0,	0,1	10/38,2	20/38,	8/38,	0,	0,	0,	0,	0,],#18
[0,	0,	0,	0,	0,	0,	0,	0,	0,1	10/38,2	20/38, 8	3/38,	0,	0,	0,	0,],#20
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,1	10/38,20	9/38,	8/38,	0,	0,	0,],#22
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,10	9/38,2	20/38,	8/38,	0,	0,],#24
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,1	10/38,2	20/38,	8/38,	0 ,],#26
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,1	10/38,2	20/38,	8/38,],#28
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	1,],#30

#	0,	1,	2,	3,	4,	5,			8,	9,	10,	11,	12,	13,	14,	15,	16,	17,	18,	19,	20	
[1,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,			0,	0,	0,	0,	0,	0,	0]	
[0,	1,	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0,	0,	0,	0,	0,	0,	0,	0,	0]	
[10/38,	0,2	0/38,	0,	8/38,	0,	0,	0,	0,	0,	0,	, 0,	, 0,	0,	0,	0,	0,	0,	0,	0,	0]	
[0,1	0/38,	0,20	3/38,	0,	8/38,	0,	0,	0,	0,	0,	, 0,	, 0,	0,	0,	0,	0,	0,	0,	0,	0]	
[0,	0,1	0/38,	0,	20/38,	0,	8/38,	0,	0,	0,	0,	, 0,	, 0,	0,	0,	0,	0,	0,	0,	0,	0]	
[0,	0,	0,10	3/38,	0,	20/38,	0,	8/38,	0,	0,	0,	, 0,	, 0,	0,	0,	0,	0,	0,	0,	0,	0]	
[0,	0,	0,	0,	10/38,	0,	20/38,	0,	8/38,	0,	0,	, 0,	0,	0,	0,	0,	0,	0,	0,	0,	0]	
[0,	0,	0,	0,	0,	10/38,	0,	20/38,	0,	8/38,	0,	, 0,	, 0,	0,	0,	0,	0,	0,	0,	0,	0]	
[0,	0,	0,	0,	0,	0,	10/38,	0,	20/38,	0,	8/38,	, 0,	0,	0,	0,	0,	0,	0,	0,	0,	0]	
[0,	0,	0,	0,	0,	0,	0,	10/38,	0,	20/38,	0,	8/38,	0,	0,	0,	0,	0,	0,	0,	0,	0]	
[0,	0,	0,	0,	0,	0,	0,	0,	10/38,	0,	20/38,	, 0,	8/38,	0,	0,	0,	0,	0,	0,	0,	0]	
[0,	0,	0,	0,	0,	0,	0,	0,	0,	10/38,	0,	20/38,	0,	8/38,	0,	0,	0,	0,	0,	0,	0]	
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	10/38,	, 0,	20/38,	0,	8/38,	0,	0,	0,	0,	0,	0]	
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	10/38,	0,	20/38,	0,	8/38,	0,	0,	0,	0,	0]	
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	10/38,	0,	20/38,	0,	8/38,	0,	0,	0,	0]	
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	0,	10/38,	0,	20/38,	0,	8/38,	0,	0,	0]	
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	10/38,	0,	20/38,	0,	8/38,	0,	0]	
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	0,	0,	0,	10/38,	0,	20/38,	0,	8/38,	0]	
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	0,	0,	0,	0,	10/38,	0,	20/38,	0,	8/38]	
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	0,	0,	0,	0,	0,	0,	0,	1,	0]	
Г	0.	0.	0.	0.	0,	0.	0.	0,	0,	0.	0.	. 0.	0,	0.	0.	0.	0.	0.		0.	11	

F74065050 邱凱琳 資訊 110 F74066080 游淳如 資訊 110 資訊 110 F64054049 F74062078 丁筠馨 黃姿涵 資訊 110

Odd&Red / Even&Black:

Probability: 10/38(win 2/2) 16/38(win1/2) 12/38(lose)

Trasition probability matrix(at most 20 dollars):

		-										1										
#	0,	1,	2,	3,	4,	5,	6,	7,	8,	, 9,	, 10	, 1	1,	12,	13,	14,	15,	16,	17,	18,	19,	20
[1,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0	, (0,	0,	0,	0,	0,	0,	0,	0,	0,	0]
[0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0	, (0,	0,	0,	0,	0,	0,	0,	0,	0,	0]
[12/	/38,	0,16/	38,	0,10	/38,	0,	0,	0,	0,	, 0,	, 0	, (0,	0,	0,	0,	0,	0,	0,	0,	0,	0]
[0,12	/38,	0,16	/38,	0,1	0/38,	0,	0,	0,	, 0,	, 0	, (0,	0,	0,	0,	0,	0,	0,	0,	0,	0]
Ī	0,	0,12/	38,	0,16	/38,	0,10/	38,	0,	0,	, 0,	, 0	, (Э,	0,	0,	0,	0,	0,	0,	0,	0,	0]
Ī	0,	0,	0,12	/38,	0,1	6/38,	0,1	L0/38,	0,	, 0,	, 0	, (0,	0,	0,	0,	0,	0,	0,	0,	0,	0]
Ī	0,	0,	0,	0,12	/38,	0,16/	38,	0,1	10/38,	, 0,	, 0	, (0,	0,	0,	0,	0,	0,	0,	0,	0,	0]
[0,	0,	0,	0,	0,1	2/38,	0,1	L6/38,	0,	,10/38,	, 0	, (0,	0,	0,	0,	0,	0,	0,	0,	0,	0]
Ī	0,	0,	0,	0,	0,	0,12/	38,	0,1	16/38,	, 0,	10/38	, (0,	0,	0,	0,	0,	0,	0,	0,	0,	0]
Ī	0,	0,	0,	0,	0,	0,	0,1	12/38,	0,	,16/38,	, 0	,10/3	В,	0,	0,	0,	0,	0,	0,	0,	0,	0]
Ī	0,	0,	0,	0,	0,	0,	0,	0,1	12/38,	, 0,	16/38	, (0,10	/38,	0,	0,	0,	0,	0,	0,	0,	0]
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	,12/38,	, 0	,16/3	В,	0,10	/38,	0,	0,	0,	0,	0,	0,	0]
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	12/38	, (0,16	/38,	0,10/	38,	0,	0,	0,	0,	0,	0]
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0	,12/3	В,	0,16	/38,	0,10	/38,	0,	0,	0,	0,	0]
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0	, (0,12	/38,	0,16/	38,	0,10	/38,	0,	0,	0,	0]
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0	, (0,	0,12	2/38,	0,16	/38,	0,10	/38,	0,	0,	0]
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0	, (Э,	0,	0,12/	38,	0,16	738,	0,	10/38,	0,	0]
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0	, (0,	0,	0,	0,12	/38,	0,16	/38,	0,1	0/38,	0]
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0	, (Э,	0,	0,	0,	0,12	2/38,	0,	16/38,	0,1	0/38]
Ī	0,	0,	0,	0,	0,	0,	0,	0,	0,	, 0,	, 0	, 6	a,	0,	0,	0,	0,	0,	0,	0,	0,	0]
ř	a	a	a	a	a	a	a	a	a	a	a		a	a	a	a	a	a	a	a	a	- 11

Even/Odd & Low/High:

Probability: 9/38(win 2/2) 18/38(win1/2) 11/38(lose)

Trasition probability matrix(at most 20 dollars):

```
[0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0],
```

```
[0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0,
                  0, 0, 0, 0, 0, 0,
                        0,
                         0,
[0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0,
                      0,
                       0,
                         0,
   0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0,
                      0, 0,
   0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0,
                         0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0,
      0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0,
 0.0.
   0, 0,
    0, 0,
                          0, 0, 0,
    0, 0,
      0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0,
   0, 0,
 0, 0,
   0, 0,
    0, 0,
      0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0,
0, 0,
 0, 0,
   0, 0,
    0,
   0, 0,
 0, 0,
   0, 0,
```

Red/Black & Low/High:

Probability: 9/38(win 2/2) 18/38(win1/2) 11/38(lose)

Trasition probability matrix(at most 20 dollars):

```
[0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0],
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0],
```

```
[0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0,
                  0, 0, 0, 0, 0, 0,
                        0,
                         0,
[0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0,
                      0,
                       0,
                         0,
   0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0,
                      0, 0,
   0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0, 0,
                         0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0, 0, 0,
      0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0,
 0.0.
   0, 0,
    0, 0,
                          0, 0, 0,
    0, 0,
      0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0, 0,
   0, 0,
 0, 0,
   0, 0,
    0, 0,
      0, 0, 0, 0, 0, 0, 0, 0, 0, 0.289, 0, 0.474, 0, 0.236, 0, 0, 0, 0, 0,
0, 0,
 0, 0,
   0, 0,
    0,
   0, 0,
 0, 0,
   0, 0,
```

Column / Dozen:

Probability: 12/38(win) 26/38(lose)

Trasition probability matrix(at most 20 dollars):

#		θ,	1,	2,	3,	4,	5,	6,	7,	8,	9,	10, 1	1,	12, 1	13, 1	14, 1	15,	16,	17,	18,	19,	20, .	21,	22
[1,	0,	0,	Θ,	0,	Θ,	0,	Θ,	0,	0,	0,	0,	0,	Θ,	0,	0,	0,	0,	0,	0,	0,	0,	0],
[0,	0,	0,	0,	0,	Θ,	0,	Θ,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	Θ,	0].
[26/3	38,	0,	0,	0,	0,	0,12/	38,	Θ,	0,	0,	0,	0,	0,	Θ,	0,	0,	0,	0,	0,	0,	0,	Θ,	0]
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	Θ,	0]
[0,	0,26/	38,	0,	0,	0,	0,	0,12/3	38,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	Θ,	0]
[0,	Θ,	0,	0,	0,	0,	0,	Θ,		0,		Θ,	0,	Θ,	0,	0,	0,	0,	0,	Θ,	0,	Θ,	0]
[0,	Θ,	0,	0,26/3	38,	0,	0,	Θ,	0,	0,12/	38,	Θ,	0,	Θ,	0,	0,	0,	0,	0,	Θ,	0,	Θ,	0]
[0,	Θ,	0,	0,	0,	0,		0,	0,	0,		Θ,		Θ,	0,	0,	0,	0,	0,	Θ,	0,	Θ,	0]
[0,	Θ,	0,	0,	0,	0,26/	38,	0,	0,	0,	0,	0,12/	38,	Θ,	0,	0,	0,	0,	0,	Θ,	0,	Θ,	0]
[0,	Θ,	0,	0,	0,	0,		0,		0,	0,	Θ,		Θ,		0,	0,	0,	0,	Θ,	0,	Θ,	0]
[0,	0,	0,	0,	0,	0,	0,	0,26/3	38,	0,	0,	0,	0,	0,12/		0,	0,	0,	0,	Θ,	0,	Θ,	0]
[0,	0,	0,	0,	0,	0,				0,		0,	0,	Θ,		0,	0,	0,	0,	Θ,	0,	Θ,	0]
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,26/	38,	0,	0,	Θ,	0,	0,12/	38,	0,	0,	0,	0,	Θ,	0]
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,		0,		0,		0,	0,	0,	0,	0,	0,	Θ,	0]
[0,	0,	0,	0,	0,	0,		0,		0,	0,	0,26/		Θ,		0,	0,	0,12/		0,	0,	Θ,	0]
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	Θ,		Θ,		0,	0,	0,	0,	0,	0,	Θ,	0]
[0,	Θ,	0,	0,	0,	0,	0,	Θ,		0,	0,	9,	0,	0,26/		0,	0,	0,	0,	0,12/	38,	Θ,	0]
[0,	Θ,	0,	0,	0,	0,	0,	Θ,		0,	0,	Θ,		Θ,		0,	0,	0,	0,	0,	0,	Θ,	0]
[0,	0,	0,	0,	0,		Θ,		0,		Θ,		0,		0,26/		0,	0,	0,	0,	0,12/	
[0,	Θ,	0,	0,	0,	0,	0,	0,	0,	0,	0,	Θ,	0,	Θ,	0,	0,	0,	0,	0,	Θ,	0,	Θ,	0]
[0,	Θ,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	Θ,	0,	0,	0,	0,	0,	Θ,	1,	Θ,	0]
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	Θ,	0,	0,	0,	0,	0,	Θ,	0,	Θ,	0]
[0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	0,	Θ,	0,	Θ,	0,	0,	0,	0,	0,	0,	0,	Θ,	1]

