3 - Player Pineapple Odds/Outs Instructions

All outs are calculated from only knowing the cards up to the decision in question. First Street is the first player looking at their first 5 cards.
Blue represents the First to Act player (FTA), or Streets 1,4,7,10.
Red represents the Second to Act player (STA), or Streets 2,5,8,11
Green represents the in position player (BU), or Streets 3,6,9,12.

Known Cards Example:
You are FTA and have just picked up 3 cards on your 4th draw (5-3-3-3), also known as **10th Street**. You can see your cards (9), your opponent's board (9+9), your 3 draw cards (3), and you know your 2 dead cards (2).

- **Known Cards** = 9 + 9 + 9 + 3 + 2 = 32

Direct Outs Example:
Now with the 3 cards in your hand you may want to know the odds of hitting 5 outs on the last draw (3 left to draw), in order to determine where to place that devilish Queen (or some other tough decision).

- Scroll to the Direct Odds Table, **5 outs**, **10th Street**, and find **60%**

Indirect Outs/Runner-Runner Outs Example:
If you needed to hit **5-outs** then **4-outs**, and you were on **10th Street**:

- Scroll to the Indirect Outs Table, **5/4**, **10th Street** and see that you have **22%**.

How To Make Calculations
(Only for Math Nerds)

If I have X outs and there are Y cards in the deck, then my chances of drawing 1 card and it being one of my outs is: **X/Y**

Start by creating a table with all of our **numbers of outs** - X - across all different **deck sizes** - Y - for only 1 draw.

The odds of missing when drawing 1 card are the remainder of the odds of hitting, X/Y, which you can compute as either (1-X/Y) or (Y-X)/Y, (its the exact same because Y-X = all the cards that don't hit your outs) either way its the "chance of missing our outs."

If we get two draws and want to know the odds of hitting our outs, we add:

- Chances of hitting the first draw: **X/Y**
- Chances of missing the first - **(1-X/Y) *** Chances of hitting the second - **X/(Y-1)** - where the 1 is the 1 card we took out of the deck on the first draw.

The complete equation is:
- **X/Y +(1-X/Y) * X/(Y-1)**

If we have more draws, we can chain the events together using the same process to get our result.

For Conditional Probability, we multiply the chances of hitting one draw by the chances of hitting another... and, of course, making sure we are using the appropriate number of outs and cards in the deck for each calculation.

Pineapple Open Face Chinese 3-Player Direct Outs/Odds From Current Street's Decision

Street	1st		2nd		3rd		4th		5th		6th		7th		8th		9th		10th		11th		12th	
	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D
Outs	5	12	10	12	15	12	18	9	20	9	22	9	25	6	27	6	29	6	32	3	34	3	36	3
1	**26%**		**29%**		**32%**		**26%**		**28%**		**30%**		**22%**		**24%**		**26%**		**15%**		**17%**		**19%**	
2	**45%**		**49%**		**55%**		**47%**		**49%**		**52%**		**40%**		**43%**		**46%**		**28%**		**31%**		**35%**	
3	**60%**		**65%**		**70%**		**62%**		**64%**		**67%**		**55%**		**58%**		**62%**		**40%**		**44%**		**49%**	
4	**71%**		**76%**		**81%**		**73%**		**75%**		**78%**		**66%**		**69%**		**73%**		**51%**		**55%**		**61%**	
5	**79%**		**83%**		**88%**		**81%**		**83%**		**86%**		**75%**		**78%**		**82%**		**60%**		**65%**		**71%**	
6	**85%**		**89%**		**92%**		**87%**		**89%**		**91%**		**82%**		**85%**		**88%**		**68%**		**73%**		**79%**	
7	**89%**		**92%**		**95%**		**91%**		**93%**		**94%**		**87%**		**90%**		**92%**		**75%**		**80%**		**85%**	
8	**93%**		**95%**		**97%**		**94%**		**95%**		**97%**		**91%**		**93%**		**95%**		**81%**		**85%**		**90%**	
9	**95%**		**97%**		**98%**		**96%**		**97%**		**98%**		**94%**		**95%**		**97%**		**86%**		**90%**		**94%**	
10	**96%**		**98%**		**99%**		**98%**		**98%**		**99%**		**96%**		**97%**		**98%**		**89%**		**93%**		**96%**	
11	**98%**		**99%**		**99%**		**98%**		**99%**		**99%**		**97%**		**98%**		**99%**		**93%**		**96%**		**98%**	
12	**98%**		**99%**		**99.72%**		**99%**		**99%**		**99.66%**		**98%**		**99%**		**99.54%**		**95%**		**98%**		**99%**	
13	**99%**		**99.53%**		**99.85%**		**99%**		**99.67%**		**99.83%**		**99%**		**99%**		**99.79%**		**97%**		**99%**		**99.82%**	
14	**99%**		**99.72%**		**99.93%**		**99.68%**		**99.83%**		**99.92%**		**99%**		**99.74%**		**99.92%**		**98%**		**99.51%**		**100%**	
15	**99.57%**		**99.84%**		**99.97%**		**99.82%**		**99.91%**		**99.97%**		**99.69%**		**99.88%**		**99.97%**		**99%**		**99.88%**		**-**	

Pineapple Open Face Chinese 3-Player Indirect Outs/Odds from Current Street's Decision

Street	1st		2nd		3rd		4th		5th		6th		7th		8th		9th		10th		11th		12th	
	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D
Outs	5	12	10	12	15	12	18	9	20	9	22	9	25	6	27	6	29	6	32	3	34	3	36	3
1/1	6%		8%		10%		6%		7%		8%		4%		5%		6%		2%		2%		2%	
2/1	11%		13%		17%		11%		13%		14%		8%		9%		11%		3%		4%		5%	
2/2	19%		23%		29%		20%		23%		25%		14%		17%		19%		6%		7%		9%	
3/1	15%		18%		22%		15%		17%		19%		11%		13%		15%		4%		6%		7%	
3/2	26%		31%		38%		27%		30%		33%		20%		23%		26%		9%		11%		13%	
3/3	34%		41%		48%		36%		40%		44%		27%		31%		35%		13%		15%		19%	
4/1	17%		21%		25%		18%		20%		22%		13%		15%		18%		6%		7%		9%	
4/2	31%		36%		43%		32%		36%		39%		24%		28%		32%		11%		14%		17%	
4/3	41%		48%		56%		43%		47%		51%		34%		38%		43%		16%		20%		25%	
4/4	49%		56%		64%		51%		55%		60%		41%		46%		51%		21%		25%		31%	
5/1	19%		23%		28%		21%		23%		25%		15%		17%		20%		7%		9%		11%	
5/2	34%		40%		47%		36%		40%		43%		28%		32%		36%		14%		17%		21%	
5/3	46%		53%		61%		48%		52%		56%		38%		43%		48%		20%		24%		29%	
5/4	55%		62%		70%		58%		62%		66%		47%		52%		58%		25%		31%		38%	
5/5	61%		69%		77%		64%		68%		73%		54%		59%		65%		31%		37%		45%	
6/1	21%		25%		29%		22%		24%		27%		17%		19%		22%		8%		10%		12%	
6/2	37%		43%		50%		39%		43%		46%		31%		35%		39%		16%		19%		24%	
6/3	50%		57%		64%		52%		56%		60%		42%		47%		52%		23%		28%		34%	
6/4	59%		66%		74%		62%		66%		70%		52%		57%		63%		29%		35%		43%	
6/5	66%		73%		81%		69%		73%		77%		59%		64%		70%		36%		42%		51%	
6/6	71%		78%		85%		75%		78%		82%		65%		70%		76%		41%		49%		58%	

Pineapple Open Face Chinese 3-Player Indirect Outs/Odds from Current Street's Decision

Street	1st		2nd		3rd		4th		5th		6th		7th		8th		9th		10th		11th		12th	
	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D	K	D
Outs	5	12	10	12	15	12	18	9	20	9	22	9	25	6	27	6	29	6	32	3	34	3	36	3
7/1	22%		26%		31%		23%		26%		28%		18%		21%		23%		9%		11%		14%	
7/2	39%		45%		52%		41%		45%		48%		33%		37%		41%		18%		21%		26%	
7/3	52%		59%		67%		55%		59%		63%		46%		50%		55%		26%		31%		38%	
7/4	62%		69%		77%		65%		69%		73%		56%		61%		66%		33%		39%		48%	
7/5	70%		76%		83%		73%		77%		80%		63%		69%		74%		40%		47%		56%	
7/6	75%		82%		88%		78%		82%		85%		70%		75%		80%		46%		54%		64%	
7/7	79%		85%		91%		82%		86%		89%		74%		79%		84%		52%		60%		X	
8/1	23%		27%		31%		24%		26%		29%		19%		22%		24%		10%		12%		15%	
8/2	41%		47%		53%		43%		46%		49%		35%		39%		43%		20%		24%		29%	
8/3	55%		61%		68%		57%		61%		64%		48%		53%		58%		28%		34%		41%	
8/4	65%		71%		78%		68%		71%		75%		58%		63%		69%		36%		43%		51%	
8/5	72%		79%		85%		76%		79%		82%		67%		72%		77%		44%		51%		61%	
8/6	78%		84%		90%		81%		84%		87%		73%		78%		83%		51%		59%		X	
8/7	82%		88%		93%		85%		88%		91%		78%		83%		87%		56%		65%		X	
8/8	85%		90%		94%		88%		91%		93%		82%		86%		90%		62%		X		X	
9/1	24%		27%		32%		25%		27%		29%		20%		22%		25%		11%		13%		16%	
9/2	42%		48%		54%		44%		47%		50%		37%		40%		44%		21%		25%		31%	
9/3	56%		62%		69%		59%		62%		66%		50%		54%		59%		31%		36%		43%	
9/4	67%		73%		79%		69%		73%		76%		61%		65%		70%		39%		46%		55%	
9/5	74%		80%		86%		77%		81%		84%		69%		74%		79%		47%		55%		X	
9/6	80%		86%		91%		83%		86%		89%		76%		80%		85%		54%		63%		X	
9/7	84%		89%		94%		87%		90%		92%		81%		85%		89%		61%		X		X	
9/8	87%		92%		96%		90%		92%		94%		85%		89%		92%		66%		X		X	
9/9	90%		94%		97%		92%		94%		96%		87%		91%		X		X		X		X	