Expected Wins for Standard Keno with 80 Numbers
Using Standard Keno Probability and Empirical Data Probability

Game with 80 Numbers
House Draws 20 Numbers
Player Picks 10 Spots   9/15/2016

Catches	Standard Keno Probability	Empirical Data Probability	(see note below)
4	0.3063%	30.63%	
5	0.0645%	6.45%	
6	0.0129%	1.29%	**To use this spreadsheet, enter the**
7	0.0024%	0.24%	**number of locations and the prize**
8	0.0004%	0.04%	**caps desired.**
9	0.0001%	0.01%	
10	0.000011%	0.00%	

Specifications for Customer's Keno System

Business Hours per Day	24	
Business Days per Month	30	

Location Plays

Expected Players per Hour	3	per location
Draws per Ticket	5	
Tickets per hour	2	
Tickets per Day		144
Tickets per Month		4320
Price of keno Cards	0.01	$43.20
Draws Played per Hour	30	
Plays per Day		720
Plays per Month		21600 per location

Locations in Network   **100**   **<--- Enter number of locations**

Expected Plays per Month in Network	2160000
Expected Tickets Played in Network	432000
Revenue From keno Card Sales	$4,320.00

Keno Draws per Hour	15	
(draw at 4 minute interval)		
Draws per Day		360
Draws per Month		10800

Prepared by Our Fun Gaming (OFG), Thomas Butler, 15 September 2016

Spot's Expected Wins and Payout
using standard keno probability

Catches (matches)	Monthly Wins	Prize Cap	Monthly Payout	Wins Per Day	Payout Per Day
4	33.08	$0.00	$0.00	1.1	$0.00
5	6.97	$5.00	$34.83	0.2	$1.16
6	1.39	$10.00	$13.93	0.0	$0.46
7	0.26	$50.00	$13.18	0.0	$0.44
8	0.05	$100.00	$4.69	0.0	$0.16
9	0.00	$200.00	$0.00	0.0	$0.00
10	0.00	$500.00	$0.00	0.0	$0.00
	Total Monthly Prize Payout (using capped prize amounts)		$66.63	1.4	$2.22

Each Location Payout Cost $0.67   100 locations

Spot's Expected Wins and Payout
using probability from empirical testing data collected by Thomas Butler

Catches (matches)	*Enter your prize caps here:* Monthly Wins	Prize Cap	Monthly Payout	Network Wins Per Day	Network Payout Per Day	Location Wins Per Day	Location Payout Per Day
4	3308	**$0.00**	$0.00	110.3	$0.00	1.1	$0.00
5	697	**$2.00**	$1,393.04	23.2	$46.43	0.2	$0.46
6	139	**$5.00**	$696.52	4.6	$23.22	0.0	$0.23
7	26	**$10.00**	$263.55	0.9	$8.78	0.0088	$0.09
8	4.7	**$20.00**	$93.87	0.2	$3.13	0.0016	$0.03
9	0.8	**$20.00**	$15.64	0.0	$0.52	0.0003	$0.01
10	0.1	**$20.00**	$2.42	0.0	$0.08	0.0000	$0.00
	Total Monthly Prize Payout (using capped prize amounts)		$2,465.04	139.2	$82.17		$0.82

NOTE: catch of 9 or 10 will probably not happen

Less keno Card Revenue $1.44
Net Gain (Loss) Per Location $0.62

Each Location Payout Cost $24.65   100 locations

Note on empircal data probability:
The probabilities were computed from testing draws and picks using the OFG keno game
developed by Thomas Butler. Two tests were run to validate the OFG keno system:
  Test #1, 10,000 picks against 1 draw for five draws; result was 32% for 4 spots, 6 % for 5 spots, etc.
  Test #2, 3,200 picks against 600 draws. Results were essentially the same as in test #1
The tests show the probability consistent regardless of the number of picks or draws; which was expected,
since the probability is a function of the combination computations. In this case for standard keno with 80
numbers, house picks 20 numbers, and the player picks 10 spots and must have x number of catches to win.

Keno Glossary:
House   keno game operator, (casino, etc.)
Catch   number picked by player that matches a house pick
Spot   number picked by player
Draw   series of numbers picked by the house

Prepared by Our Fun Gaming (OFG), Thomas Butler, 15 September 2016