K'Nex Ping-Pong Ball Fruit Machine

There are three reels with eight symbols on each. Each symbol has a value of 0, 2, 4 or 8. After each spin, three symbols appear in the machine's window. The size of the win is the lowest of the displayed symbols' values.

The distribution of symbol values is as follows:

Symbol Value		
Reel 1	Reel 2	Reel 3
0	0	0
2	8	8
8	4	2
4	0	0
2	2	4
8	8	0
4	0	0
8	4	2

Symbol Frequency			
Symbol Value	Reel 1	Reel 2	Reel 3
0	1	3	4
2	2	1	2
4	2	2	1
8	3	2	1
Total	8	8	8

Size of Win	Chance of WIn	Expected Value
8	$\frac{3}{8} \times \frac{2}{8} \times \frac{1}{8} = \frac{6}{512}$	$\frac{6}{512} \times 8 = \frac{48}{512}$
4	$\frac{5}{8} \times \frac{4}{8} \times \frac{2}{8} - \frac{6}{512} = \frac{34}{512}$	$\frac{34}{512} \times 4 = \frac{136}{512}$
2	$\frac{7}{8} \times \frac{5}{8} \times \frac{4}{8} - \frac{6}{512} - \frac{34}{512} = \frac{100}{512}$	$\frac{100}{512} \times 2 = \frac{200}{512}$
Total	$\frac{140}{512} = 27.3\%$	$\frac{384}{512} = 75\%$

Note

The chance of winning 4 balls is the chance of a symbol worth 4 or 8 on each reel, minus the chance that they are all 8s.

Similarly, the chance of winning 2 balls is the chance of a symbol worth 2, 4 or 8 on each reel, minus the chance that they are all 8s or a combination of 4s and 8s.

The symbols used in the machine are as follows:

Value of Symbol	Symbol
8	
4	
2	
0	