# Yspahan - Value of Buying a Yellow Die 

Calculated by Hein Hundal Formatted by Chuck Berry

Examples: Buying a yellow die increases the chance of a Vase by about $8 \%$.
A 9th die (2 players) increases the chance of a Chest or Vase by about $20 \%$.

Freestanding Probability

| Freestanding Probability |  |  |  |  |  |  |  |
| ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Dice | Different Dice: |  |  |  |  |  |  |
| Rolled: | 1 | 2 | 3 | 4 | 5 | 6 |  |
| 1 | $100.00 \%$ | $0.00 \%$ | $0.00 \%$ | $0.00 \%$ | $0.00 \%$ | $0.00 \%$ |  |
| 2 | $16.67 \%$ | $83.33 \%$ | $0.00 \%$ | $0.00 \%$ | $0.00 \%$ | $0.00 \%$ |  |
| 3 | $2.78 \%$ | $41.66 \%$ | $55.56 \%$ | $0.00 \%$ | $0.00 \%$ | $0.00 \%$ |  |
| 4 | $0.46 \%$ | $16.20 \%$ | $55.56 \%$ | $27.78 \%$ | $0.00 \%$ | $0.00 \%$ |  |
| 5 | $0.08 \%$ | $5.79 \%$ | $38.58 \%$ | $46.29 \%$ | $9.26 \%$ | $0.00 \%$ |  |
| 6 | $0.01 \%$ | $1.99 \%$ | $23.15 \%$ | $50.16 \%$ | $23.15 \%$ | $1.54 \%$ |  |
| 7 | $0.00 \%$ | $0.68 \%$ | $12.90 \%$ | $45.01 \%$ | $36.01 \%$ | $5.40 \%$ |  |
| 8 | $0.00 \%$ | $0.23 \%$ | $6.90 \%$ | $36.46 \%$ | $45.01 \%$ | $11.40 \%$ |  |
| 9 | $0.00 \%$ | $0.08 \%$ | $3.60 \%$ | $27.76 \%$ | $49.66 \%$ | $18.90 \%$ |  |
| 10 | $0.00 \%$ | $0.03 \%$ | $1.85 \%$ | $20.30 \%$ | $50.64 \%$ | $27.18 \%$ |  |
| 11 | $0.00 \%$ | $0.01 \%$ | $0.94 \%$ | $14.46 \%$ | $48.97 \%$ | $35.62 \%$ |  |
| 12 | $0.00 \%$ | $0.00 \%$ | $0.48 \%$ | $10.11 \%$ | $45.63 \%$ | $43.78 \%$ |  |

Cumulative Probability

| Dice Different Dice: |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rolled: | 1+ | $2+$ | $3+$ | 4+ | 5+ | 6+ |
| 1 | 100.00\% | 0.00\% | 0.00\% | 0.00\% | 0.00\% | 0.00\% |
| 2 | 100.00\% | 83.33\% | 0.00\% | 0.00\% | 0.00\% | 0.00\% |
| 3 | 100.00\% | 97.22\% | 55.56\% | 0.00\% | 0.00\% | 0.00\% |
| 4 | 100.00\% | 99.54\% | 83.34\% | 27.78\% | 0.00\% | 0.00\% |
| 5 | 100.00\% | 99.92\% | 94.13\% | 55.55\% | 9.26\% | 0.00\% |
| 6 | 100.00\% | 99.99\% | 98.00\% | 74.85\% | 24.69\% | 1.54\% |
| 7 | 100.00\% | 100.00\% | 99.32\% | 86.42\% | 41.41\% | 5.40\% |
| 8 | 100.00\% | 100.00\% | 99.77\% | 92.87\% | 56.41\% | 11.40\% |
| 9 | 100.00\% | 100.00\% | 99.92\% | 96.32\% | 68.56\% | 18.90\% |
| 10 | 100.00\% | 100.00\% | 99.97\% | 98.12\% | 77.82\% | 27.18\% |
| 11 | 100.00\% | 100.00\% | 99.99\% | 99.05\% | 84.59\% | 35.62\% |
| 12 | 100.00\% | 100.00\% | 100.00\% | 99.52\% | 89.41\% | 43.78\% |

## Increase from Nth Die

## Different Dice:

| Added: <br> Rolled: | 1 <br> Camel | 2 <br> Gold | 3 <br> Sack | 4 <br> Barrel | 5 <br> Chest | 6 <br> Vase |
| ---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 9 | $0.00 \%$ | $0.00 \%$ | $0.15 \%$ | $3.45 \%$ | $12.15 \%$ | $7.50 \%$ |
| 10 | $0.00 \%$ | $0.00 \%$ | $0.05 \%$ | $1.80 \%$ | $9.26 \%$ | $8.28 \%$ |
| 11 | $0.00 \%$ | $0.00 \%$ | $0.02 \%$ | $0.93 \%$ | $6.77 \%$ | $8.44 \%$ |
| 12 | $0.00 \%$ | $0.00 \%$ | $0.01 \%$ | $0.47 \%$ | $4.82 \%$ | $8.16 \%$ |

