

Intro to Probability (one event)

Find the sample space and the total number of possible outcomes for each situation below. Then determine the probability of certain events.

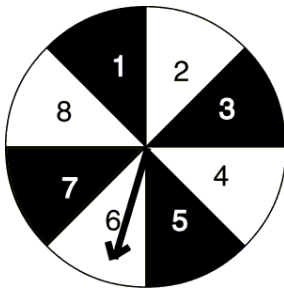
1. Rolling a 6-sided die



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| Sample space: { _____ } |
| Total number of possible outcomes= _____ |

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|----------|-------------|----------------------|-----------|----------------|----------------|
| a. P(5)= | b. P(even)= | c. P(multiple of 3)= | P(not 4)= | P(number > 6)= | P(number ≤ 6)= |
|----------|-------------|----------------------|-----------|----------------|----------------|

2. Spinning the spinner pictured below



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|--|
| Sample space: { _____ } |
| Total number of possible outcomes= _____ |

| | |
|-----------|--------------------|
| P(2)= | P(even or black)= |
| P(odd)= | P(even and black)= |
| P(white)= | P(prime)= |

3. Drawing a marble out of a jar

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| Sample space: | <p><u>Jar contains</u> 4 large red, 2 small red, 3 large green, 5 small green, 6 large blue, 1 small blue</p> |
| Total number of possible outcomes = | |

| | | |
|--------------------|---------------------|-----------------------------|
| P(red)= | P(small and blue)= | P(not green) |
| P(large)= | P(large and green)= | P(large or red)= |
| P(small or green)= | P(small and large)= | P(_____) = $\frac{9}{21}$ |

4. The sum of the numbers when rolling two standard six-sided dice.



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| Sample space: |
| Total number of possible outcomes = |

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- a. $P(\text{sum} > 8) =$ d. $P(\text{sum} > 8 \text{ or doubles}) =$
- b. $P(\text{rolling doubles}) =$ e. $P(\text{sum} > 8 \text{ and doubles}) =$
- c. $P(\text{sum of } 10) =$ f. $P(\text{doubles and sum of } 10) =$
- g. $P(\text{sum of } 7) =$ h. $P(\text{multiple of } 5 \text{ or sum of } 10) =$

5. Suppose that you enter a raffle drawing in which only 150 raffle tickets are sold and there will only be one winning ticket. You choose to buy 3 tickets, your sister buys 2 tickets, your friend Henry buys 5 tickets, and your friend Amy buys 1 ticket.

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|-------------------------------------|
| Sample space: |
| Total number of possible outcomes = |

- a. $P(\text{you will win}) =$ b. $P(\text{Amy wins}) =$ c. $P(\text{Henry wins}) =$
- d. $P(\text{your sister wins}) =$ e. $P(\text{any one of you wins}) =$ f. $P(\text{neither of you wins}) =$

6. Look back at question #3. If there are 8 small marbles and 8 green marbles, then why is $P(\text{small or green}) \neq \frac{16}{21}$. Explain.