

Probability WS

Name:

1. What is the probability that a random arrangement of CCELOORRTY will spell "CORRECTLY?"
2. A family has 3 children. What is the probability 2 are boys?
3. If five boys and five girls sit in a row in a random order, what is the probability that no two children of the same sex sit together?
4. Your locker has 12 books, one is a novel. If you randomly pick out one, what is the probability it is the novel?
5. If you randomly arrange the letters AFRICA, what is the probability that you get an arrangement where begins and ends with an "A"?
6. Five boys and five girls are randomly assigned a seat. Find the probability that the boys are seated together.
7. Six fair dice are tossed. What is the probability that at least two of them show the same face?
8. Many games (hearts, spades, bridge) deal all 52 cards to 4 players. If you are dealt a hand of 13 cards, and then the cards are shuffled and re-dealt, what is the odds that you get the same cards?
9. The dice game Farkle starts with throwing 6 six sided dice. A 1 is worth 100, a 5 is worth 50. What is the probability that at least one die is a one or a five?
10. If 5 (six sided) dice were rolled, what is the probability that they would be the same (all one's, all two's, etc.)?

11. Marbles of equal size and weight are randomly chosen from a bag. There are 5 red, one white, and 4 blue marbles. If you were to randomly choose two with replacement,
- List the possible outcomes (the sample space).
 - What is the probability that two reds are selected?
 - What is the probability that two blues are selected?
 - What is the probability that two whites are selected?
 - What is the probability that a white and a red are selected (order doesn't matter)?
12. Only 2 of eight blocks are red. If they are stacked randomly, what is the probability that the top 2 are red?
13. A standard poker deck has 52 cards, 13 of each suit and 4 suits. A poker hand is made by choosing 5 of the 52 cards.
- How many poker hands are possible?
 - How many ways can you get a straight (5 cards in order... Ace can be low or high, so for example $A\spadesuit, 2\heartsuit, 3\diamondsuit, 4\clubsuit, 5\heartsuit$ is a straight and $A\diamondsuit, K\clubsuit, Q\diamondsuit, J\heartsuit, 10\spadesuit$ is also a straight)?
 - How many ways can you get a flush? (all 5 cards the same suit)?
14. If you toss a fair coin 10 times, what is the probability that you get heads exactly 5 times?
15. Find the probability that in a family of five, at least two were born on the same day of the week (Presume there are 7 days in a week, and that it is equally likely to be born on any particular day of the week).

Answers:

- $\frac{1}{252}$
 - $\frac{1}{252}$
 - $\frac{1}{252}$
 - $\frac{1}{252}$
 - $\frac{1}{252}$
12. $\frac{1}{28}$
13. (a) $\frac{1}{252}$
- (b) $\frac{1}{252}$
- (c) $\frac{1}{252}$
14. $\frac{1}{252}$
15. $\frac{1}{252}$