

1. **One** card is randomly selected from a standard deck of cards. What is the probability of choosing a six **and** a diamond from a standard deck of cards? $\frac{1}{52}$
2. A coin and a die are tossed. Calculate the probability of getting tails **and then** a number that is not divisible by 2. $\frac{1}{2} \cdot \frac{3}{6} = \frac{1}{4}$
3. What is the probability of drawing 2 queens cards one after the other from a standard deck of cards? $\frac{4}{52} \cdot \frac{3}{51} = \frac{1}{221}$
4. A card is randomly selected from a standard deck of 52 cards. What is the probability that is it a five **or** a club? (Hint: Remember to subtract the intersection!)
 $4 + 13 - 1 = 16/52 = 4/13$
5. **One** card is randomly selected from a standard deck of 52 cards. What is the probability of getting a spade and a face card? $\frac{3}{52}$
6. Sheila did a survey of 71 of her friends about whether they liked Justin Bieber or Justin Timberlake better. Thirty-two said they liked Bieber, 25 said they liked Timberlake, and 4 said they liked both.
 - a. Create a Venn Diagram of the information.
 - b. How many like Bieber or Timberlake? 53
 - c. How many like neither Bieber nor Timberlake? 18
7. Two coins are tossed. What is the probability of getting a tail, followed by a head? $\frac{1}{4}$
8. A card is chosen from a standard deck what are the odds of it being a heart? 1:3
9. There are 7 Language, 4 Math, and 2 History classes that a college student can take. A student must take a class. What is the probability that the student will take a Language or a Math class? $\frac{11}{13}$
10. If the probability of making a field goal is 78%, what is the probability of **not** making a field goal 4 attempts in a row? $0.22^4 = 0.0023$
11. What is the probability of drawing a 10, given that a black card is drawn? $\frac{2}{26} = \frac{1}{13}$
12. A box of numbered chips contains the numbers 1 to 100. If a chip is drawn at random, what is the probability that it is a multiple of 2 or 7? $\frac{57}{100}$
13. Jamie has 4 shirts, 8 ties, 3 hats, and 5 pairs of slacks. Determine:
 - a. the number of different outfits consisting of a shirt, tie, hat, and pair of slacks. 480
 - b. the number of different outfits consisting of a shirt, pair of slacks, and either a tie or a hat.

4	5	8	3
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$$4 \times 5 \times 8 + 4 \times 5 \times 3 = 220$$

14. A pet store contains 35 light green parakeets (14 females and 21 males) and 44 sky blue parakeets (28 females and 16 males). Arrange this information in a two-way table.

	Male	Female	Total
Light Green Parakeet	21	14	35
Sky Blue Parakeet	16	28	44
Total	37	42	79

- You randomly choose one of the parakeets. What is the probability that it is a male or a sky blue parakeet? $\frac{65}{79}$
 - What is the probability that the randomly chosen parakeet is both green and female? $\frac{14}{79}$
 - What is the probability that the randomly chosen parakeet is male and is blue? $\frac{16}{79}$
15. A bag contains 20 marbles. The probability of drawing a red marble is 0.50, the probability of drawing a blue marble is 0.30, and the remainder of the marbles are yellow.
- List the elements of the sample space (using set notation). $\{\text{red, blue, yellow}\}$
 - What is the probability of randomly selecting a yellow or blue marble? 0.5
 - What is the probability of randomly selecting a red marble and then another red marble? $\frac{10}{20} \cdot \frac{9}{19} = \frac{9}{38}$
 - What is the probability of randomly selecting a blue marble, returning it, and then a yellow marble. (Remember, this is called drawing *with replacement*). 0.2
16. 0.2

	Swimmers	Runners	Total
9 th Grade	4	16	20
10 th Grade	16	64	80
Total	20	80	100

- What is the probability of selecting a runner given that they are in 10th grade? $\frac{64}{80} = \frac{4}{5}$
- What is the probability of selecting a person who is a swimmer or 9th grader? $\frac{36}{100} = 0.36$
- What are the odds of selecting a 9th grade runner? $16:100 = 4:25$
- What is the probability of selecting a swimmer given that they are in 9th grade? $\frac{4}{20} = \frac{1}{5}$

Determine if the following are joint or disjoint

- Rolling a die and drawing a red card Disjoint
- Picking a green marble then a blue marble Disjoint
- Drawing a black card then a face card Joint