

Probability Study Guide

Name: Key

Sample space : 20

1. Mike has to pick marbles out of a bag. The bag has 10 red marbles, 6 green marbles, and 4 blue marbles.
- What is the probability that Mark picks a red marble out of the bag?
 - What is the probability that Mark picks a green marble out of the bag?
 - What is the probability that Mark picks a marble that is not blue out of the bag?

$$\frac{10}{20}$$

$$\frac{6}{20}$$

$$\frac{16}{20}$$

50%

30%

80%

2. Use the table below to answer the following questions:

	Video Games	Books	Total
Boys	105	35	140
Girls	20	60	80
Total	125	95	200

- a. What is the probability of selecting a girl or selecting someone who plays video games?

$$\frac{80}{200} + \frac{125}{200} - \frac{20}{200} = \frac{185}{200}$$

93%

- b. What is the probability of selecting a boy given that the person plays video games?

$$\frac{105}{125}$$

84%

3. Alan, Brooke, Candice, and Dylan are selected to participate in a game where they pick money out of a bag. The bag contains 20 \$10 bills, 12 \$20 bills, 6 \$50 bills, and 2 \$100 bills. After someone picks a bill, they keep that bill and do not put it back into the bag. (Without Replacement) sample space : 40

- a. What is the probability that Alan picks a \$20 bill?

$$\frac{12}{40}$$

30%

- b. What is the probability that Alan picks a \$100 bill, then Candice picks a \$10 bill, then Brooke picks a \$20 bill?

$$\frac{2}{40} \cdot \frac{20}{39} \cdot \frac{12}{38} = \frac{480}{59280}$$

.8%

- c. What is the probability that Dylan, Alan, and Candice all pick \$10 bills?

$$\frac{20}{40} \cdot \frac{19}{39} \cdot \frac{18}{38} = \frac{6840}{59280}$$

12%

4. Caleb has 8 t-shirts, 4 pairs of pants, and 7 pairs of shoes. How many different outfits can he make based off of the clothes he owns. (Use the Fundamental Counting Principle)

$$8 \cdot 4 \cdot 7$$

224

5. The table below shows the results of classes being asked for their favorite pet:

	Dogs	Cats	Birds	Total
Boys	46	24	10	80
Girls	30	42	8	80
Total	76	66	18	160

a. What is the probability of selecting a girl who likes cats?

$$\frac{42}{160}$$

26%

b. What is the probability of selecting a boy or someone who likes dogs?

$$\frac{80}{160} + \frac{76}{160} - \frac{46}{160} = \frac{110}{160}$$

69%

6. Tara, Megan, and Sasha need to interview people to get quotes for the year book. They each decide to pick someone from Mr. Maestro's first period because it has 3 freshman, 8 sophomores, 12 juniors, and 7 seniors. The people are not taken out of class and can be picked by more than one person. (With Replacement)

sample space: 30

a. What is the probability that Tara picks a senior from the class?

$$\frac{7}{30}$$

23%

b. What is the probability that Tara picks a junior and Megan picks a freshman?

$$\frac{12}{30} \cdot \frac{3}{30} = \frac{36}{900}$$

4%

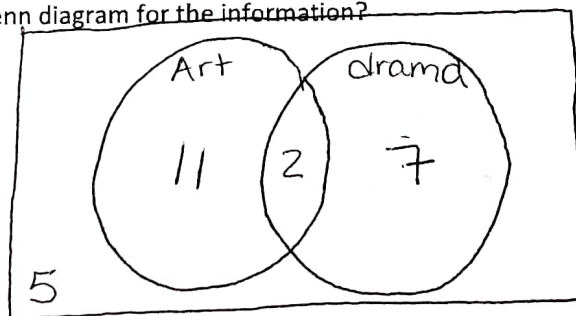
c. What is the probability that Megan and Sasha both pick sophomores from the class?

$$\frac{8}{30} \cdot \frac{8}{30} = \frac{64}{900}$$

7%

7. In a class of 25 students, 5 do not study either art or drama. 13 students study art, 9 study drama, and 2 students study both art and drama.

a) Make a venn diagram for the information?



b) What is the probability of choosing a student at random that studies art only?

$$\frac{11}{25}$$

44%