

MATH 123 Quantitative Reasoning Homework Section 16 Probability

Section: _____

Name: _____

Show the setup for finding the probabilities.

1. Betty has several of the standard six-sided dice that are common in many board games. If Betty rolls one of these dice, what is the probability that:
 - a. She rolls a three.
 - b. She rolls an odd number.
 - c. She rolls a six or a one.

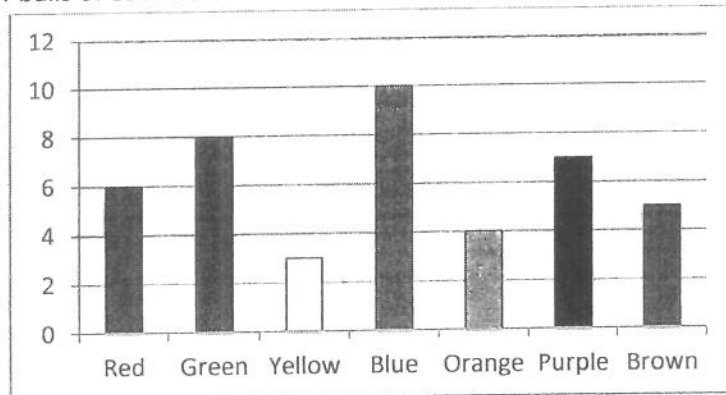
2. Susie has several of the standard six-sided dice that are common in many board games. If Susie rolls one of these dice, what is the probability that:
 - a. She rolls a two.
 - b. She rolls a three or a six.
 - c. She rolls an even number

3. During the past year in the maternity ward of a hospital in a large city, 1,254 Males were born and 1,462 Females. If we can assume this data is representative of all births in the city:
 - a. What is the probability that the next baby born in this particular hospital will be a boy?
 - b. What is the probability that it will be a girl?

4. Ivy Tech's latest diversity report stated that the Central Indiana Ivy Tech had about 13,600 students that identified themselves as Caucasian and about 9,000 students that identified themselves as a minority.
 - a. What is the probability that a student chosen at random from this group was Caucasian?
 - b. What is the probability that a student chosen at random from this group was a Minority?

MATH 123 Quantitative Reasoning Homework Section 16 Probability

5. Consider a container filled with balls in a variety of colors. The bar graph below represents the number of balls of each color in the container.



a. How many balls are in the container?

b. If you select one ball randomly from the container (No Peeking!), what is the likelihood that it will be orange?

c. Two percent of the Male population has a type of color-blindness called dichromasy. For men with this condition, the colors red, orange, yellow, and green all appear the same. If a man with this condition were to select a ball from the container, what is the likelihood that he would select a ball of a color that would look "red" to him?

6. Consider the container from the problem above!

a. If you select one ball randomly from the container, what color are you most likely to draw?

b. If you select one ball randomly from the container (No Peeking!), what is the likelihood that it will be red?

c. The colors green, blue and purple are considered cool colors. If you select one ball randomly from the container, what is the likelihood that it will be a cool color ball?

MATH 123 Quantitative Reasoning Homework Section 16 Probability

	Health	Tech	Gen	Total
Male	137	686	724	
Female	412	172	885	
Total				

9. The above table shows a sample of students by major.

- What is the probability that a student chosen at random is majoring in health?
- What is the probability that a student chosen at random is Male?
- What are the two ways that you can find the probability that a student chosen at random is Female?
- What is the probability that a student chosen at random is majoring in Tech and is male?
- What is the probability that a student chosen at random is majoring in Tech or is male?
- If a student chosen at random is Male, what is the probability that they are majoring in Tech?
- If a student chosen at random is majoring in tech, what is the probability that they are Male?

10. Given the data in the following table, determine the following probabilities:

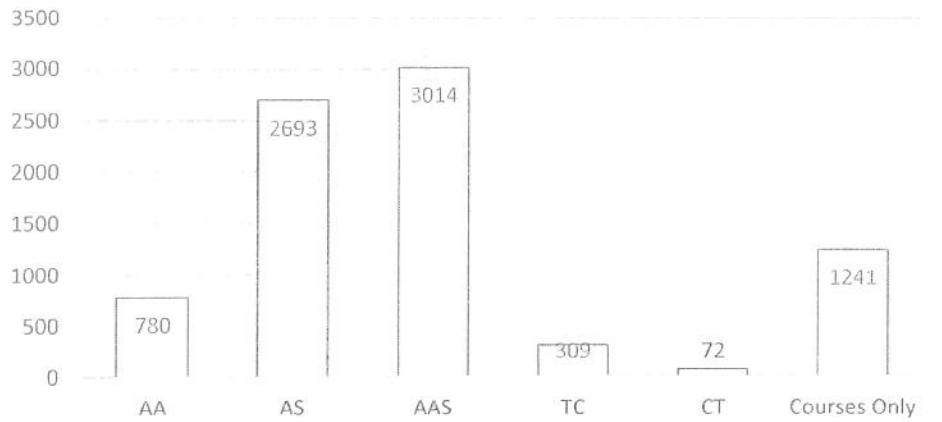
	Female	Male
Republican	105	115
Democrat	150	103
Independent	150	179

Source: Star Tribune Minnesota Poll

- What is the probability a person from this poll is an Independent voter?
- What is the probability a person is either Republican or Democrat?
- What is the probability a Male voter is Independent?
- What is the probability an Independent voter is Male?
- What is the probability a voter is either Male or Democrat?
- If a voter is Female, what is the probability she is a Republican?

MATH 123 Quantitative Reasoning Homework Section 16 Probability

7. This bar chart shows the type of degree that students at the Ivy Tech Lafayette campus were seeking in Fall 2010.



- How many students were enrolled in Fall 2010?
- If you picked a student at random, what degree were they most likely seeking?
- If you selected a student randomly, what is the likelihood they were seeking an AS degree?
- If you selected a student randomly, what is the likelihood they were seeking a TC or CT?

	Short	Long	Total
Male	65	30	
Female	55	40	
Total			

8. The above table shows the type of each rat that a pet store has in stock.
- What is the probability that a rat chosen at random is long haired?
 - What is the probability that a rat chosen at random is Male?
 - What are the two ways that you can find the probability that a rat chosen at random is Female?
 - What is the probability that a rat chosen at random is short haired and male?
 - What is the probability that a rat chosen at random is short haired or male?
 - If a rat chosen at random is Male, what is the probability that it is short haired?
 - If a rat chosen at random is short haired, what is the probability that it is Male?

MATH 123 Quantitative Reasoning Homework Section 16 Probability

11. The following table of data comes from the Bureau of Labor Statistics.

Employment Status	Level of Education			
	Did Not Finish High School	High School Graduate	Some College	Bachelor's Degree or Higher
Employed	9,993	34,130	34,067	43,992
Unemployed	1,806	3,838	3,161	2,149
Not in the labor force	19,969	30,246	18,373	16,290

Source: Bureau of Labor Statistics

Determine the following probabilities:

- A person selected at random is employed with some college
- A person selected at random is a high school graduate
- A person selected at random is employed
- A person is either unemployed or not in the labor force
- A person is either unemployed or did not finish high school
- If a person has a bachelor's degree or higher, what is the probability they are employed?
- If a person is unemployed, what is the probability they did not finish high school?