



Objective

Probability Models

Warm-Up



Determine each ratio.

1. number of day names ending in "day" to total number of day names

2. number of days in the week to total days in the year



1. Construct a probability model for each situation. Explain how you constructed the model. Then, determine whether or not the probability model is a uniform probability model.

a. Rolling an 8-sided polyhedron with the numbers 1–8

Outcome								
Probability								

b. Choosing a marble from a bag of marbles containing 1 green marble, 2 red marbles, and 7 blue marbles

Outcome			
Probability			

c. Selecting a member of the Chess Club whose members are Samuel, Martha, Carol, Jon, Sally, Ronaldo, and Simon:

Outcome							
Probability							

d. Selecting a male member of the Chess Club whose members are Samuel, Martha, Carol, Joanne, Sally, Ronaldo, and Simon:

Outcome		
Probability		

2. Use the probability model to calculate each probability.

Outcome	2	3	4	5	6	7
Probability	$\frac{1}{12}$	$\frac{3}{12}$	$\frac{1}{12}$	$\frac{5}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

a. $P(3) =$

b. $P(8) =$

c. $P(\text{number less than } 8) =$

d. $P(\text{prime number}) =$

e. $P(\text{even number}) =$



When Mr. York receives his homeroom list for this year, he cannot believe it—all of the last names in his homeroom start with one of 5 letters! The table shows how many students in Mr. York's homeroom have last names beginning with the letters listed.

Letter	Number of Students
A	7
B	4
M	5
S	12
O	2

1. How many students are in Mr. York's homeroom?
2. Create a probability model for selecting a student from Mr. York's homeroom.
 - a. Randomly choosing a student with a last name that begins with a vowel.
 - b. Randomly choosing a student with a last name that does not begin with S.
 - c. Randomly choosing a student with a last name that begins with C.
3. Use the probability model to determine each probability.
 - a. Randomly choosing a student with a last name that begins with a vowel.
 - b. Randomly choosing a student with a last name that does not begin with S.
 - c. Randomly choosing a student with a last name that begins with C.

Show You KNOW

Compare and Contrast

Your best friend is not in school today and misses this lesson. Help your friend understand what you have learned. Write 1–2 paragraphs that explain the answers to these two questions.

1. What is the difference between a uniform probability model and a non-uniform probability model?

2. Will the sum of all the probabilities of the outcomes of an event be equal to 1 for both uniform and non-uniform probability models?



LESSON 10.2b
Give the Models a Chance



Objective

Probability Models

Practice

1. Use the probability model to determine each probability.

Outcome	1	2	3	4	5	6	7	8
Probability	$\frac{2}{25}$	$\frac{4}{25}$	$\frac{1}{25}$	$\frac{5}{25}$	$\frac{2}{25}$	$\frac{4}{25}$	$\frac{3}{25}$	$\frac{4}{25}$

a. P(4)

b. P(7)

c. P(less than 7)

d. P(greater than 8)

e. P(odd number)

f. P(less than 10)

g. Is this a uniform probability model? Explain your answer.

2. Use the probability model to determine each probability.

Outcome	A	B	C	D	E	F
Probability	$\frac{2}{20}$	$\frac{5}{20}$	$\frac{2}{20}$	$\frac{7}{20}$	$\frac{1}{20}$	$\frac{3}{20}$

a. P(B)

b. P(F)

c. P(not C)

d. P(consonant)

e. P(not A)

f. P(vowel)

g. Is this a uniform probability model? Explain your answer.