

Practice 12-1

Probability Distributions

1. Use the frequency table to find each probability.

- What is the probability that a person living alone is 45 or older?
- In a sample of 100 persons living alone, predict how many are age 35 and older.
- Find $P(15 \text{ to } 24 \text{ years of age})$
- Find $P(35 \text{ to } 44 \text{ years of age})$
- Find $P(65 \text{ years and older})$

Persons Living Alone in 1999 (in thousands)

15 to 24 years of age	1,313
25 to 34 years of age	3,714
35 to 44 years of age	4,074
45 to 64 years of age	7,757
65 years and older	9,747

Source: www.infoplease.com

2. You roll two number cubes. Make a table to show the probability distribution for each sample space.

- {the sum of the cubes is 5 or less, the sum is greater than 5}
- {the sum of the cubes is prime, the sum is composite}
- {only one cube shows 2, both cubes show the same number, the cubes show different numbers and neither is a 2}

3. A survey of student pizza preferences showed that 43 students preferred cheese, 56 preferred sausage, 39 preferred pepperoni, 28 preferred supreme, 31 preferred another kind, and 19 did not like any type of pizza.

- Organize this data in a frequency table.
- Find the experimental probability for each outcome in the table. Round to the nearest tenth of a percent. What is the sum of the experimental probabilities? Explain.
- Graph the probability distribution for {pizza, no pizza}.
- Graph the probability distribution for {cheese, sausage or pepperoni, supreme or other, no pizza}.
- How are the probability distributions related?

4. Visitors to the game preserve see up to eight species of large mammals as they drive through. A survey shows that the number of species seen varies according to the distribution below.

Probability Distribution for Number of Species Seen

s	0	1	2	3	4	5	6	7	8
P(s)	0.08	0.12	0.21	0.18	0.12	0.11	0.09	0.08	0.01

- Use random numbers to simulate the number of species seen in each of 20 visits to the preserve. What is the average per visit?
- You donate \$5 to the preserve for upkeep of each species you see. On the basis of your simulation, how much would you donate in 20 visits?