

Extra Practice

Extra Practice Chapter 7 Skills Practice

7-1

- When text messaging on a telephone, pressing a 3 types D, E, F, or 3. Pressing a 7 types P, Q, R, S, or 7. How many messages are possible by pressing a 3, a 7, and then a 3? 80
- At a company, each employee has an ID that consists of 2 digits followed by a letter. The letters Q and X are not used. How many employee IDs are possible? 2400
- If there are 8 finalists in a talent show, how many ways can a winner and a runner-up be chosen? 56
- Jim's soccer team has 18 members. How many ways can the coach choose a right forward, a center forward, and a left forward? 4896
- Erin's health club offers 7 types of aerobics classes. She plans to attend 4 classes this week. How many ways can she choose 4 classes that are all different? 35
- Francesca can take 4 of her 14 books on a trip. How many ways can she choose them? 1001

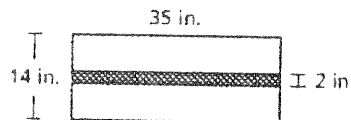
7-2

Two number cubes are rolled. Find each probability.

- Both cubes roll the same number. $\frac{1}{6}$
- The sum is greater than 8. $\frac{5}{18}$
- The sum is 8 or less. $\frac{13}{18}$
- Both cubes roll even numbers. $\frac{1}{4}$
- What is the probability that a random 2-digit number is a multiple of 7? $\frac{13}{90}$
- What is the probability that a randomly selected day in January is after the 20th? $\frac{11}{31}$
- A mother is making different lunches for each of her 3 children. If each child grabs a lunch bag at random, what is the probability that all 3 children will get the correct bag? $\frac{1}{6}$
- A teacher writes MATHEMATICS on a piece of paper and then cuts out each letter and puts them all in a bag. She will draw two letters at random. What is the probability that she will select an M and an A? $\frac{4}{55}$

The shaded region is vertically centered in the flag. Find each probability.

- a random point inside the flag is in the shaded region $\frac{1}{7}$
- a random point inside the flag is above the shaded region $\frac{3}{7}$



A marble is drawn from a bag and then its color is recorded in the table.

- Find the experimental probability of drawing a blue marble. 0.32 or 32%
- Find the experimental probability of drawing a pink or a yellow marble. 0.48 or 48%

Marble Drawing Experiment	
Color	Times Drawn
Pink	12
Green	10
Blue	16
Yellow	12

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7-3 Find each probability.

7-3

19. rolling a number greater than or equal to 4 on a number cube twice in a row $\frac{1}{4}$
20. drawing a face card from a deck, replacing it, and drawing a number card $\frac{30}{169}$
21. Two number cubes are rolled—one blue and one yellow. Find the probability that the yellow cube is even, and the sum is 7. Explain why the events are dependent.
See Additional Answers.

The table shows the results of a schoolwide survey on the homecoming dance. Find each probability.

	Girls	Boys
Gymnasium	67	58
Cafeteria	53	37

22. A student who prefers the cafeteria is a girl.
 0.589 , or 58.9%
23. A surveyed student is male and prefers the gymnasium.
 0.278 , or 27%

A bag contains 18 beads—5 blue, 6 yellow, and 7 red. Determine whether the events are independent or dependent. Find the indicated probability.

24. selecting a yellow and then a blue bead when they are chosen with replacement independent; $\frac{5}{54}$
25. selecting a yellow and then a blue bead when they are chosen without replacement dependent; $\frac{5}{51}$

7-4 The table shows the side dish chosen with the lunch plate and the supper plate at a diner on one day.

7-4

	Salad	Fries	Broccoli	Total
Lunch	26	47	9	82
Supper	42	29	34	105
Total	68	76	43	187

26. Make a table of the joint and marginal relative frequencies. Round to the nearest hundredth where appropriate. See Additional Answers.
27. If you are given that a customer ordered a lunch plate, what is the probability that fries were chosen as the side dish? about 0.57
28. If you are given that a customer ordered broccoli with the meal plate, what is the probability that it was the supper plate? about 0.79
29. A table was chosen at random in the cafeteria, and there were 2 freshmen, 5 sophomores, 7 juniors, and 2 seniors eating there. A student is chosen at random from the table. What is the probability of choosing a freshman or a senior? $\frac{1}{4}$

7-5 The numbers 1–20 are written on cards and placed in a bag. Find each probability.

7-5

30. choosing a number less than 10 or choosing a multiple of 5 $\frac{3}{5}$
31. choosing 20 or choosing an odd number $\frac{11}{20}$
32. In an apartment building with 50 residents, 16 residents have cats, 28 residents are students, and 9 of the students have cats. What is the probability that a resident is a student or has a cat? $\frac{7}{10}$
33. There are 8 couples in a dance competition, and each of the 3 judges must pick the couple they believe should win. Suppose the judges picked randomly. What is the probability that at least 2 judges picked the same couple? $\frac{11}{32}$