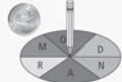## 11 Practice Test

For #1 to #3, choose the best answer.

Two four-sided dice (one red, one blue) are rolled. The following table represents the sample space for the possible outcomes. Use the table to answer #1 to #3.

Blue Four-Sided Die	Red Four-Sided Die			
	1	**2**	**3**	**4**
1	1, 1	1, 2	1, 3	1, 4
2	2, 1	2, 2	2, 3	2, 4
3	3, 1	3, 2	3, 3	3, 4
4	4, 1	4, 2	4, 3	4, 4

1. What is the probability that the same number appears on each die?

A $\frac{1}{4}$ B $\frac{1}{5}$ C $\frac{2}{16}$ D $\frac{1}{16}$

2. What is the probability that the sum of the two dice is less than four?

A $\frac{13}{16}$ B $\frac{1}{2}$ C $\frac{1}{4}$ D $\frac{3}{16}$

3. What is the probability that neither die has a two showing?

A $\frac{9}{16}$ B $\frac{1}{2}$ C $\frac{7}{16}$ D $\frac{1}{4}$

A coin is flipped once. A spinner, divided into six equal regions, is spun once. Use the diagram to help complete the statements in #4 and #5.

4. The total number of possible outcomes is ■.

5. An expression that calculates the probability that the coin lands heads up and the spinner stops on a vowel is ■ × ■.

Short Answer

6. Determine the total number of possibilities if one item is selected from each of the categories on the menu shown.

CAFETERIA
Drink choices: milk
         apple juice
Meal choices: burger
         pizza
         chicken strips
Dessert: ice cream
        chocolate cake
        fresh fruit

7. A marble is selected randomly from a bag containing five orange marbles and three purple marbles. A jellybean is randomly chosen from a jar containing two red jellybeans and three blue jellybeans.

a) What is the probability of selecting a red jellybean? Express your answer as a fraction and a percent.

b) What is the probability of selecting an orange marble and a blue jellybean? Express your answer as a fraction and a decimal.

8. David decides to survey the next 30 people who walk into the library at school to see who they are going to vote for in the school elections next week. His results are summarized in the following table. What is the experimental probability that a student will vote for Maria in the election? Express your answer as a decimal and a percent.

Candidates	Jesse	Maria	Marcus	Angela
Votes	11	7	4	8

Extended Response

9. Jamie is going camping this weekend. She is hoping that it does not rain either Saturday or Sunday. The forecast calls for a 70% chance of rain on Saturday and a 50% chance of rain on Sunday.

a) What is the probability that it will rain both days?

b) What is the probability that no rain will fall for the entire weekend?

c) Jamie has ten cards, each labelled with a number from one to ten. Explain how she could perform a simulation to see if it will rain on both days.

d) She does not know whether to perform 10 trials or 100 trials. Explain which number of trials is likely to be more accurate.

10. Explain how you could use a coin to determine the experimental probability that a family with four children has four girls. Determine the theoretical probability of four girls. Describe any assumptions that you make.

WRAP IT UP!

- With a partner, make a set of four sticks for a stick game. Use tongue depressors or something similar; make sure each stick has two flat surfaces.
- Decorate one side of each of the four sticks.
- Taking turns, each person holds the sticks in one hand and lets them fall to the ground. Record your experimental results.
- The scoring is shown in the table. Keep a running score.

All four decorated sides up	5 points
Three up and one down	2 points
Two up and two down	1 point
One up and three down	2 points
All four down	5 points

- The game can finish after a certain length of time, or when someone reaches a certain score (for example, 50).

a) Determine the theoretical probability for each of the five possible outcomes. You may wish to draw the sample space as a tree diagram.

b) Is the scoring system fair? Explain your reasoning.

c) How close is the scoring system to your theoretical results?

d) How close are your experimental results to your theoretical results?

MathLinks 8, pages 438–439

Suggested Timing
40–50 minutes

Materials
• ruler

Blackline Masters
BLM 11–12 Chapter 11 Test

Planning Notes

Have students start the practice test by writing the question numbers in their notebooks. Have them indicate questions with which they need a little help, a lot of help, or no help. Have students first complete the questions they know they can do, followed by those they know something about. Finally, have students do their best on the questions that they are struggling with.

This practice test can be assigned as an in-class or take-home assignment. Provide students with the number of questions they can comfortably do in one class. These are the minimum questions that will meet the related curriculum outcomes: #1, #2, and #5–#8.

Study Guide

Question(s)	Section(s)	Refer to	The student can …
1, 2, 3	11.1	Example 2	✓ express the probability of an event as a fraction, a decimal, and a percent
4, 5	11.2	Example 1	✓ determine the outcomes of two or more independent events ✓ verify the total number of possible outcomes using a different strategy
6	11.2	Example 2	✓ determine the outcomes of two or more independent events ✓ verify the total number of possible outcomes using a different strategy
7	11.3	Example 2	✓ solve probability problems
8, 9, 10	11.3	Example 3	✓ solve probability problems

Answers

Chapter 11 Practice Test

1. A **2.** D **3.** A **4.** 12 **5.** $\frac{1}{2} \times \frac{2}{6}$

6. Total number of possibilities: 18

7. a) P(red jellybean) $= \frac{2}{5} = 40\%$

b) P(orange marble, blue jellybean) $= \frac{3}{8} = 0.375$

8. Experimental probability: P(a student will vote for Maria in the next election) $= 0.2\overline{3} = 23.\overline{3}\%$

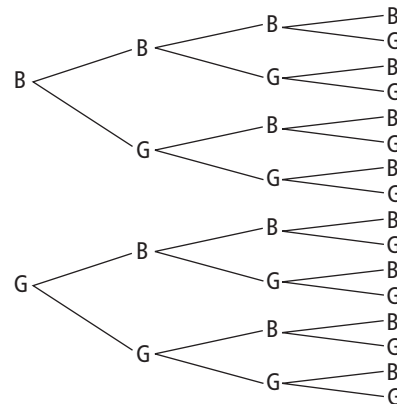**9. a)** P(rain on Saturday, rain on Sunday) $= \frac{7}{20} = 35\%$

b) P(no rain on Saturday, no rain on Sunday) $= \frac{3}{20} = 15\%$

c) Answers may vary. Example: Jamie could mark seven cards with R for rain and leave the other three cards blank. She should shuffle the cards and then randomly pick one card to simulate whether it will rain on Saturday. She should then take one blank card and one card marked R and randomly select one of these two cards to see if it will rain on Sunday.

d) Answers may vary. Example: Jamie should complete 100 trials to get a more accurate set of results. In general, the more trials that are completed, the closer the experimental probability will be to the theoretical probability.

10. Answers may vary. Example: You could assign the head of the coin to represent a boy being born and the tail of the coin to represent a girl being born. There is an assumption that the probability that a girl is born for any birth is exactly 50%. The multiplication method can be used to find the probability of four girls being born in a family: P(four girls being born in a family) $= \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{16}$. The answer can also be found by directly counting successful pathways on a tree diagram, such as the one shown here.

First Child   Second Child   Third Child   Fourth Child

Assessment	Supporting Learning
Assessment *as* Learning	
Chapter 11 Self-Assessment Have students review their earlier responses in the What I Need to Work On booklet of their chapter Foldable.	• Have students use their responses on the practice test and work they completed earlier in the chapter to identify areas in which they may need to reinforce their understanding of skills or concepts. Before the chapter test, coach them in the areas in which they are having difficulties.
Assessment *of* Learning	
Chapter 11 Test After students complete the practice test, you may wish to use **BLM 11–12 Chapter 11 Test** as a summative assessment.	• Consider allowing students to use their chapter Foldable. • Consider using the Math Games on page 440 or the Challenge in Real Life on page 441 to assess the knowledge and skills of students who have difficulty with tests.