

Unit 7 Probability Test Review

Multiple Choice
Identify the choice that best completes the statement or answers the question.

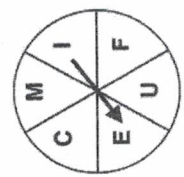
1. Which of these pairs of events are dependent?
 a. You flip a coin and get tails. You flip it a second time and get heads.
 b. You pull your friend's name out of a hat that holds 20 different names, replace the name, then draw out your friend's name again. **Independent**
 c. You spin a spinner divided into five equal parts and is numbered 1-5. You get a 3 on the first spin, and then spin again and get a 2 on the second spin.
 d. You remove a black sock from a drawer without looking, then remove another black sock.
2. A grab bag contains 3 football cards and 7 basketball cards. An experiment consists of taking one card out of the bag, then selecting another card. **10 total cards**
 What is the probability of selecting a football card and then a basketball card if:
 (a) the first card is *not* replaced? **a) $\frac{2}{10} \cdot \frac{7}{9} = \frac{21}{90} = 0.23$ b) $\frac{2}{10} \cdot \frac{7}{10} = \frac{21}{100} \approx 0.21$**
 (b) the first card *is* replaced?
 Express your answers in decimal form. If necessary, round answers to the nearest hundredth.
 a. (a) 0.21 (a) 0.23
 b. (b) 0.23 (b) 0.21
 c. (a) 0.23
 d. (a) 0.09 (b) 0.49
3. What is the probability of rolling a 1 on the first number cube and rolling a 5 on the second number cube? Assume the number cubes are fair and have six sides. Express your answer as a fraction in simplest form.
 $\frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$



4. Lynda and Erin are part of a group going to a basketball game. The group has 2 courtside seats, 4 upper level seats, and 4 seats in the mezzanine. Find the probability that both events *A* and *B* will occur if the group randomly chooses their seats. Express your answer as a percent. If necessary, round your answer to the nearest tenth. **10 total tickets**
 Event *A*: Lynda will sit courtside at the basketball game.
 Event *B*: Erin will sit courtside at the basketball game.
 a. 20%
 b. 2.2%
 c. 97.8%
 d. 4%

$\frac{2}{10} \cdot \frac{1}{4} = \frac{2}{40} = \frac{1}{20} \approx 2.0\%$

5. If the spinner is spun twice, what is the probability that the arrow will stop on a vowel both times?



$\frac{2}{6} \cdot \frac{3}{6} = \frac{9}{36} \rightarrow \frac{1}{4}$

- a. $\frac{7}{36}$ b. $\frac{1}{6}$ c. $\frac{1}{4}$ d. $\frac{5}{18}$

6. The table shows the distribution of the labor force in the United States in the year 2000. Suppose that a worker is selected at random. Find the probability that a female works in the Industry field. Express your answer as a decimal rounded to the nearest thousandth.

	Agriculture	Industry	Services
Male	3,132,000	25,056,000	50,112,000
Female	667,000	8,004,000	57,362,000

Female Total
 $\frac{8,004,000}{66,030,000} \approx 0.121$

- a. 0.242 b. 0.141 c. 0.121 d. 0.312

7. The table shows the distribution of male and female students and left- and right-handed students in the math club. Find the probability that a female student selected at random is left-handed. Express your answer as a fraction in simplest form.

	Left-handed	Right-handed
Male	4	40
Female	5	36

Female
 $\frac{5}{40+36} = \frac{5}{76}$

- a. $\frac{5}{41}$ b. $\frac{5}{9}$ c. $\frac{5}{36}$ d. $\frac{1}{17}$

8. A movie company surveyed 1000 people. 229 people said they went to see the new movie on Friday, 256 said they went on Saturday. If 24 people saw the movie both nights, what is the probability that a person chosen at random saw the movie on Friday or Saturday?

a. 0.413 b. 0.437 c. 0.461 d. 0.485
 $\frac{229}{1000} + \frac{256}{1000} - \frac{24}{1000} = \frac{461}{1000}$

9. Find the probability of rolling a 1 or an odd number on a number cube. Express your answer as a fraction in simplest form.

a. $\frac{1}{6}$ b. $\frac{2}{3}$ c. $\frac{1}{2}$ d. 1
 $\frac{1}{6} + \frac{3}{6} - \frac{1}{6} = \frac{3}{6}$

- C 10. Of 50 students going on a class trip, 35 are student athletes and 5 are left-handed. Of the student athletes, 3 are left-handed. Which is the probability that one of the students on the trip is an athlete or is left-handed?



- A 11. There are 98 students in the freshman class at Northview High. There are 33 students enrolled in Spanish class and 39 enrolled in history. There are 15 students enrolled in both Spanish and history. If a freshman is selected at random to raise the flag at the beginning of the school day, what is the probability that it will be a student enrolled in Spanish or history?

- a. $\frac{57}{98}$
 b. $\frac{19}{24}$
 c. $\frac{15}{98}$
 d. $\frac{36}{49}$

- D 12. There are 4 singers competing at a talent show. In how many different ways can the singers appear?
- C 13. Pat has 8 flowerpots, and she wants to plant a different type of flower in each one. There are 10 types of flowers available at the garden shop. In how many different ways can she choose the flowers?

- a. 16 ways
 b. 6 ways
 c. 12 ways
 d. 24 ways
- a. 90
 b. 80
 c. 45
 d. 1,814,400

- C 14. In a recent survey of 25 voters, 17 favor a new city regulation and 8 oppose it. What is the probability that in a random sample of 6 respondents from this survey, exactly 2 favor the proposed regulation and 4 oppose it? Express your answer as a decimal.

- a. 0.10
 b. 0.15
 c. 0.05
 d. 0.20

- A 15. You and 3 friends go to a concert. In how many different orders can you sit in the assigned seats?
- C 16. If no digit appears more than once, how many 2-digit numbers can be formed from the digits 2, 3, 5, and 7?

- a. 24
 b. 10
 c. 6
 d. 16
- a. 16
 b. 4
 c. 12
 d. 6

- B 17. A committee is to consist of two members. If there are seven people available to serve on the committee, how many different committees can be formed?

- a. 24
 b. 21
 c. 42
 d. 35

- D 18. A grab bag contains 4 football cards and 6 basketball cards. An experiment consists of taking one card out of the bag, replacing it, and then selecting another card. Determine whether the events are independent or dependent. What is the probability of selecting a football card and then a basketball card? Express your answer as a decimal.

- a. dependent; 0.36
 b. independent; 0.27
 c. dependent; 0.16
 d. independent; 0.24

- C 19. A person is selected at random. What is the probability that the person was not born on a Monday? Express your answer as a percent. If necessary, round your answer to the nearest tenth of a percent.

- a. 80%
 b. 20%
 c. 85.7%
 d. 14.3%

- A 20. The sections on a spinner are numbered from 1 through 8. If the probability of landing on a given section is the same for all the sections, what is the probability of spinning a number less than 4 or greater than 7 in a single spin?

- a. $\frac{1}{2}$
 b. $\frac{1}{8}$
 c. $\frac{3}{8}$
 d. $\frac{5}{8}$

Short Answer

1. A drawer contains 6 red socks, 4 white socks, and 10 blue socks. Without looking, you draw out a sock, return it, and draw out a second sock. What is the probability that the first sock is white and the second sock is red? Round your answer to the nearest hundredth. $\frac{24}{400} \rightarrow \frac{3}{50} \rightarrow 6\%$
2. A bag contains six red balls numbered 1, 3, 5, 7, 9, 10 and four white balls numbered 2, 4, 6, 8. **Part A:** If a ball is drawn at random, what is the probability the ball is red or even-numbered? $\frac{14}{10} \rightarrow 100\%$ **Part B:** If a ball is drawn at random, what is the probability the ball is white or odd-numbered? $\frac{4}{10} \rightarrow 40\%$
3. In a class of 140 students, there are 65 who like hot dogs best for dinner and 60 who like ice cream best for dessert. Find the probability that a randomly-chosen student likes hot dogs best for dinner or ice cream best for dessert when 15 like both. 78.6%
4. There are 19 students participating in a spelling bee. In how many ways can the students who go first, second, and third be chosen? $5,814$
5. A dart is thrown at the following board. Find the probability that it lands in the inner circle. Leave your answer as a simplified fraction. $\frac{9}{121}$

