

**Unit 11 Test: Probability**

**CALCULATOR ACTIVE**

Name: \_\_\_\_\_

Determine the likelihood of each event.

1. You flip a coin and you land on heads.
2. Lucy entered a contest to win an iPad mini. There were 225 entries.
3. You roll a number less than 9 on a fair number cube.
4. You pick a diamond, spade or club from a standard deck of cards.

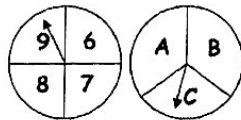
Determine if each event is independent or dependent and then find the probability.

5. Zack picks a king from a standard deck of cards and then picks a spade without replacing the first card.
6. Flipping a coin and landing on tails and rolling a number less than 5 on a fair number cube.

Find the probability of the following.

7. A letter is chosen randomly from the 26 letters in the alphabet. Find the probability of choosing a consonant. ("y" is a not a vowel)
8. A fair number cube labeled 1 to 6 is rolled. What is the probability of rolling a number greater than 1?
9. Find the probability of picking a red jack from a standard deck of cards and then spinning a 4 on a fair spinner (1-4).
10. A vase has 6 tulips, 10 daisies and 12 roses. Find the probability of randomly picking a daisy, not replacing it, and then picking a tulip.
11. Find the probability of drawing a spade, replacing the card, and then drawing a face card at random from a deck of shuffled cards.
12. Lilly has the letters P R O B A B I L I T Y in a bag. If she chooses 2 letters, without replacing the first, what is the probability that Lilly will choose 2 vowels? ("y" is a not a vowel)

Use the spinners to answer #13-14



13. What is the probability that the first spinner will land on a factor of 48 and the second spinner will land on the letter "B"?
14. If you spin the spinner 90 times, how many times would you expect to land on a prime number and a vowel?

**Final Answers**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_

15. A bowl of fruit contains apples, bananas and cherries. Find the probability of picking a cherry if the probability of picking an apple is  $\frac{1}{2}$  and a banana is  $\frac{2}{5}$ .

16. Find the probability that a dart will land in the shaded region.



You shove all your socks in the drawer without finding matches. You know you have 32 pairs of socks in four colors: white, black, gray and purple. Instead of counting your socks, you randomly pick 20 individual socks and predict the number from your results.

White	12
Black	1
Gray	3
Purple	4

17. Find the experimental probability of each:

- a. P(white)      b. P(black)      c. P(gray)      d. P(purple)

18. Based on your experiment, how many socks of each color are in your drawer?

- a. white      b. black      c. gray      d. purple

Find the number of outcomes for each situation.

19. **States:** Florida, Nebraska, California, New York, Virginia and Montana

**Offices:** Senator, Governor and House of Representative

20. For Language Arts, Josh has to complete a project. He can write a page, create a quiz, or make a game. He can choose to read a biography, nonfiction, fiction, or mystery novel. How many different options does he have?

Answer the following multiple-choice questions.

21. Ian's piggy bank contains 14 quarters, 11 dimes, 5 nickels, and 20 pennies. Ian shakes out one coin at a time from his bank and does not replace it. What is the probability that he will shake out a nickel followed by a penny?

- A. About 1%      B. About 8%      C. About 4%      D. About 10%

22. Anna has a block with each side painted one color: red, orange, yellow, green, blue, and pink. She tosses the block 48 times. What will probably happen?

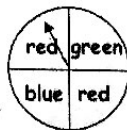
- A. Red or yellow will appear on top 24 times      C. Blue will never appear on top  
 B. Each color will appear on top 8 times      D. Green will appear on top every time

23. A spinner labeled one through four is spun 20 times. It lands on two 5 times. How does the theoretical compare to the experimental probability?

- A. Theoretical and experimental probability are equal probability  
 B. Theoretical probability is greater than experimental probability  
 C. Theoretical probability is less than the experimental prob.  
 D. It can not be determined from the data that is given

24. Design an area model to illustrate the possible outcomes.

25. Use your model from question to find the P(Red and Prime).



**Final Answers**

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

a) \_\_\_\_\_ b) \_\_\_\_\_

c) \_\_\_\_\_ d) \_\_\_\_\_

18. \_\_\_\_\_

a) \_\_\_\_\_ b) \_\_\_\_\_

c) \_\_\_\_\_ d) \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

24. \_\_\_\_\_

25. \_\_\_\_\_