

1. A standard six-sided die is rolled.

What is the probability of rolling a number less than 4? Express your answer as a simplified fraction or a decimal rounded to four decimal places.

Answer : _____

2. A box contains 51 red marbles, 14 white marbles, and 81 blue marbles.

If a marble is randomly selected from the box, what is the probability that it is red? Express your answer as a simplified fraction or a decimal rounded to four decimal places.

Answer : _____

3. Write out the sample space for the given experiment. Use the letter B to indicate boys and G for girls.

A couple plans to have 2 children.

Answer : _____

4. Write out the sample space for the given experiment. Use the following letters to indicate each choice: O for orange, R for red, B for blue, T for teak, G for gray, and E for ebony.

While renovating your house, you have a choice of paint colors for your game room: orange, red, or blue. You also have the following options for the finish on your entertainment center: teak, gray, or ebony.

Answer : _____

5. Decide if the following probability is classical, empirical, or subjective.

You believe that you have a 7% chance of getting into an accident on your way to school.

A) Subjective Probability

B) Empirical Probability

C) Classical Probability

6. Decide if the following probability is classical, empirical, or subjective.

Selecting a black card from a standard deck of cards.

A) Subjective Probability

B) Empirical Probability

C) Classical Probability

7. Decide if the following probability is classical, empirical, or subjective.

At a local university, you poll a group of 95 students and find that 60 of them are living in the dorms.

A) Subjective Probability

B) Empirical Probability

C) Classical Probability

8. There are 228 identical plastic chips numbered 1 through 228 in a box.

What is the probability of reaching into the box and randomly drawing a chip number that is greater than 116? Express your answer as a simplified fraction or a decimal rounded to four decimal places.

Answer : _____

9. A coin is tossed 7 times. What is the probability of getting at least one tail? Express your answer as a fraction or a decimal number rounded to four decimal places.

Answer : _____

10. A card is drawn from a standard deck of 52 playing cards. What is the probability that the card will be a diamond or a club? Express your answer as a fraction or a decimal number rounded to four decimal places.

Answer : _____

11. A standard pair of six-sided dice is rolled. What is the probability of rolling a sum less than 10? Express your answer as a fraction or a decimal number rounded to four decimal places.

Answer : _____

12. A newspaper company classifies its customers by gender and location of residence. The research department has gathered data from a random sample of 1614 customers. The data is summarized in the table below.

Gender and Residence of Customers		
	Males	Females
Apartment	233	151
Dorm	297	88
With Parent(s)	51	71
Sorority/Fraternity House	180	152
Other	177	214

What is the probability that a customer is female? Express your answer as a fraction or a decimal number rounded to four decimal places.

Answer : _____

13. Find the number of outcomes in the complement of the given event.

Out of 268 books in a bookcase, 177 are fictional.

Answer : _____

14. Describe the complement of the given event.

65% of nineteen-year-old males are at least 178 pounds.

Answer : _____

15. Determine whether the following events are mutually exclusive.

Choosing a diamond or a club out of a standard deck of cards.

- A) Mutually Exclusive
- B) Not Mutually Exclusive

16. Determine whether the following events are mutually exclusive.

Choosing a three or a club out of a standard deck of cards.

- A) Mutually Exclusive
- B) Not Mutually Exclusive

17. Determine whether the following value could be a probability.

0.15

- A) Yes
- B) No

18. Determine whether the following value could be a probability.

-0.02

- A) Yes
- B) No

19. Determine the value that can NOT be a probability.

$\frac{4}{3}$, 25%, 0, 0.75

- A) $\frac{4}{3}$
- B) 25%
- C) 0
- D) 0.75

20. Three cards are drawn with replacement from a standard deck. What is the probability that the first card will be a heart, the second card will be a red card, and the third card will be a face card? Express your answer as a fraction or a decimal number rounded to four decimal places.

Answer : _____

21. Two cards are drawn without replacement from a standard deck of 52 playing cards. What is the probability of choosing a heart for the second card drawn, if the first card, drawn without replacement, was a heart? Express your answer as a fraction or a decimal number rounded to four decimal places.

Answer : _____

22. There are 84 students in a history class. The instructor must choose two students at random.

Students in a History Class		
	Males	Females
Freshmen	4	12
Sophomores	2	15
Juniors	2	20
Seniors	15	14

What is the probability that a junior male and then another junior male are chosen at random? Express your answer as a fraction or a decimal number rounded to four decimal places.

Answer : _____

23. Suppose you like to keep a jar of change on your desk. Currently, the jar contains the following:

17 Pennies	9 Dimes
19 Nickels	25 Quarters

What is the probability that you reach into the jar and randomly grab a quarter and then, without replacement, a dime? Express your answer as a fraction or a decimal number rounded to four decimal places.

Answer : _____

24. Determine if the following events are independent.

Jeff goes out to eat for dinner. Rebecca rents a movie.

A) Dependent B) Independent

25. A value meal package at Ron's Subs consists of a drink, a sandwich, and a bag of chips. There are 5 types of drinks to choose from, 6 types of sandwiches, and 4 types of chips. How many different value meal packages are possible?

Answer : _____

26. A coin is tossed 3 times. How many different outcomes are possible?

Answer : _____

27. User passwords for a certain computer network consist of 2 letters followed by 4 numbers. How many different passwords are possible? Repetition is allowed.

Answer : _____

28. You are ordering a new home theater system that consists of a TV, surround sound system, and DVD player. You can choose from 8 different TVs, 16 types of surround sound systems, and 22 types of DVD players. How many different home theater systems can you build?

Answer : _____

29. Out of 300 applicants for a job, 138 are male and 46 are male and have a graduate degree.

Step 1 of 2:

What is the probability that a randomly chosen applicant has a graduate degree, given that they are male? Express your answer as a fraction or a decimal rounded to four decimal places.

Answer : _____

Step 2 of 2:

If 77 of the applicants have graduate degrees, what is the probability that a randomly chosen applicant is male, given that the applicant has a graduate degree? Express your answer as a fraction or a decimal rounded to four decimal places.

Answer : _____