

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the indicated probability. Round your answer to 6 decimal places when necessary.

- 1) Two fair 6-sided dice are rolled. What is the probability that the sum of the two numbers on the dice is greater than 10? 1) _____
- 2) Two fair 6-sided dice are rolled. What is the probability that the sum of the two numbers on the dice is not greater than 10? 2) _____
- 3) Two fair 6-sided dice are rolled. What are the odds of the sum of the two numbers on the dice is greater than 10 3) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Provide an appropriate response.

- 4) Chantal noted that there are two equally likely outcomes when you flip a fair coin and heads is one of those outcomes. She concluded that the probability of getting heads on a flip of a fair coin is $1/2$. Which method did Chantal use?
A) Relative frequency method B) Subjective method
C) Theoretical method D) Empirical method
4) _____
- 5) Which of the following could not possibly be probabilities? 5) _____
A. -0.44
B. $\frac{13}{7}$
C. 0
D. 0.43
A) A and B
B) A and D
C) A, B, and C
D) A and C
E) B and C
- 6) Which of the following events has a probability of 0? 6) _____
A: The sun will shine all day on January 1st in Portland, Oregon
B: I will win the lottery if I buy one ticket
C: Tomorrow will be Monday if today is Saturday
A) C only
B) A and C
C) B and C
D) All of them
E) A only

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Use the relative frequency method to estimate the probability. Round your answer to 2 decimal places when necessary.

- 7) Every week, Joe plays chess with his father. Of the last 50 games, Joe has won 60% of the games. What is the probability that Joe will not win the next game? 7) _____

8) Sebastian lives in a rainy city. In his city, in 9 of the past 24 years there have been more than 100 days of rain. What is the probability that there will be more than 100 days of rain next year in his city? 8) _____
 Give your answer as a fraction.

9) A group of people were asked if they had attended college. 200 responded "yes", and 350 responded "no". 9) _____
 Find the probability that if a person is chosen at random, they attended college.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the indicated probability. Round your answer to 6 decimal places when necessary.

10) Two marbles are drawn without replacement from a box with 3 white, 2 green, 2 red, and 1 blue marble. Find the probability that both marbles are white. 10) _____

- A) $\frac{3}{8}$ B) $\frac{9}{56}$ C) $\frac{3}{32}$ D) $\frac{3}{28}$

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11) The following table show the results of a clinical trial for an allergy drug. 11) _____

	Allergy drug	Placebo	Control (no treatment)	Total
Improvement	145	85	41	271
No improvement	55	115	59	229
Total	200	200	100	500

What is the probability that a randomly selected person received no treatment or improved? Round your answer to the nearest thousandth when necessary.

Solve the problem.

12) A company wants to hire a software engineer, an administrative assistant, and a sales representative. There are 4 possible candidates for the position of software engineer, 4 for the position of administrative assistant, and 3 for the position of sales representative. How many ways are there to choose the three people who will be hired? 12) _____

13) Mr. Larsen's third grade class has 22 students, 12 girls and 10 boys. Two students must be selected at random to be in the fall play. What is the probability that no boys will be chosen? Order is not important. 13) _____

14) A poker hand consists of 5 cards dealt from an ordinary deck of 52 playing cards. How many different hands are there consisting of four hearts and one spade? 14) _____

15) How many different 4-topping pizzas can be made if there are 13 individual toppings to choose from? Assume that no topping is used more than once and that the order of the toppings on the pizza is unimportant. 15) _____

16) There are 5 members on a board of directors. If they must elect a chairperson, a secretary, and a treasurer, how many different slates of candidates are possible? 16) _____

Solve the problem. Round your answer to 2 decimal places when necessary.

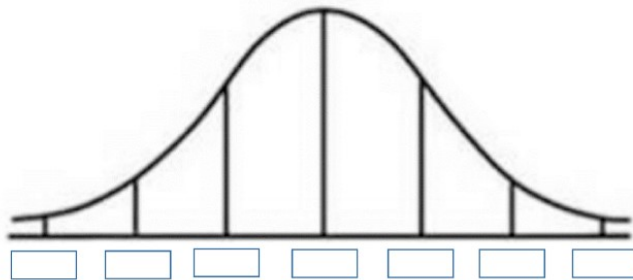
- 17) A bag contains 2 gold marbles, 7 silver marbles, and 23 black marbles. Someone offers to play this game: You randomly select one marble from the bag. If it is gold, you win \$4. If it is silver, you win \$2. If it is black, you lose \$1. What is your expected value if you play this game? 17) _____

Find the indicated probability. Round your answer to 6 decimal places when necessary.

- 18) The Kiwanis Club is selling raffle tickets to raise money for a new playground for the city. A raffle ticket costs \$2. There will be 1 winning ticket worth \$1000, 3 tickets worth \$100, and 5 winning tickets worth \$20. 1000 tickets were sold. What is the expected value (to you) of one raffle ticket? Round your answers to the nearest cent. 18) _____
- 19) In a normal distribution, what percentage of the data is between $-\infty$ and $+\infty$? (See Normal Curve Attached) 19) _____
- 20) What is the probability that a data point will be greater than 2 standard deviations above the mean? (See Normal Curve Attached) 20) _____
- 21) The mean weight of the fish in a pond is 10 pounds with a standard deviation of 3 pounds. What is the probability that a random fish caught is between 13 and 16 pounds? (See Normal Curve Attached). 21) _____
- 22) A normal distribution has a mean of 500 and a standard deviation of 50. Find the z-score for a data value of 400. 22) _____

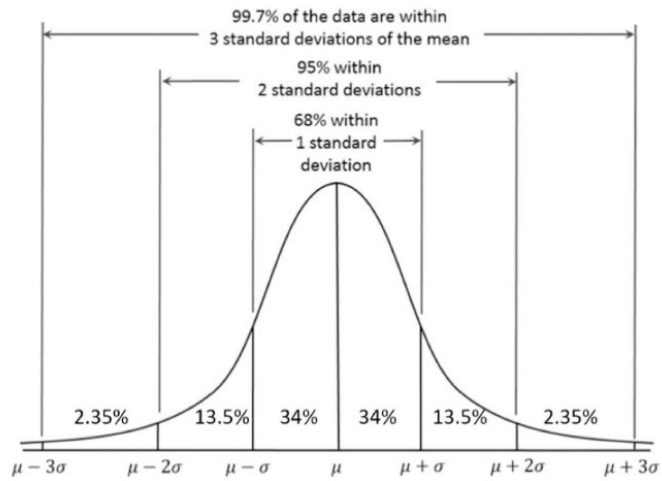
23.

22. The mean diameter (specification) of a roller bearing for a large machine is 2.2 inches. The standard deviation of the bearings coming off the assembly line is .02 inches. Complete the distribution chart below.



Distribution Chart for 19-21

Notation
 μ = mean
 σ = standard deviation



Answer Key

Testname: MATH 1001 TEST 4 PRACTICE

1) $\frac{1}{12}$

2) $\frac{11}{12}$

3) 1 to 11

4) C

5) A

6) A

7) 0.4

8) $\frac{3}{8}$

9) ~~57~~ **.364**

10) D

11) 0.66

12) 48

13) $\frac{2}{7}$

14) 9295

15) 715

16) 60

17) $-\$.03125$

18) $-.60$

19) **100%**

20) .025

21) **.135**

22) **-2.0**

23.0

