

Probability

Long-Term Memory Review

Review 1

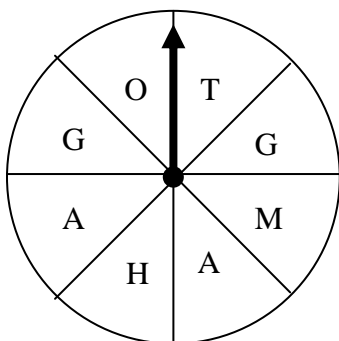
1. The formula for calculating theoretical probability of an event is $P = \frac{\text{number of favorable outcomes}}{?}$.
What does the question mark represent?
2. True or False – Experimental probability is always the same as theoretical probability.
3. What is the probability of randomly choosing an A from the letters in the word ALGEBRA?
4. Label the following events as dependent or independent events.
 - A coin is tossed and a number cube is rolled.
 - Five cards are drawn from a deck (without replacement).
 - A spinner is spun three times.
5. If the probability of two events are P_1 and P_2 , what is the probability of Event 1 **and** Event 2 occurring?
6. A drawer contains 6 red, 2 blue, and 8 black socks. Two socks are chosen randomly, with the first sock being replaced before the second is chosen. What is the probability that a blue sock and then a black sock is chosen?

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Review 2

1. What is the formula for calculating theoretical probability?
2. What is the difference between experimental and theoretical probability?
3. What is the probability of spinning a G on the spinner shown, if all sections are the same size?



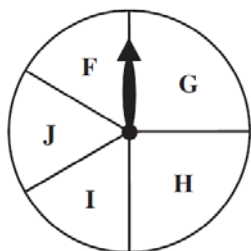
4. Rolling a die and tossing a coin are examples of _____ events. If a student rolls a die then tosses a coin two times, what is the probability he rolls an even number followed by two heads?
5. If the probability of two events are P_1 and P_2 , what is the probability of Event 1 **or** Event 2 occurring?
6. When rolling two fair dice, what is the probability of rolling a sum of 2 or 7?

Probability

Long-Term Memory Review

Review 3

1. What is the total number of outcomes in the sample space when drawing a card from a standard deck of cards?
2. A student flipped a coin 30 times and got 20 heads and 10 tails. Compare his experimental probability to the theoretical probability of obtaining a head.
3. Two number cubes are rolled. What is the probability of rolling a sum that is a prime number?
4. You pick a candy out of a box, eat it, and then your friend picks a candy. These two events are _____ events. If the box had 6 chocolate, 2 caramel, and 8 almond candies, what is the probability that you chose a chocolate candy and then your friend chose an almond candy?
5. If the probability of an event occurring is P , then what is the probability of the event NOT occurring?
6. A spinner is divided into five sections. Section F, section J, and section I are all the same size. All together, these three sections cover half of the spinner, as shown below.



The arrow on the spinner is spun one time. What is the probability that the arrow stops in section J?

Probability

Long-Term Memory Review Review 4

1. What is the possible range of values of theoretical probability? What is the probability of a certain event?
2. A student rolled a pair of 6-sided dice sixty times and recorded the sums in the frequency table below.

2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

Which comparison is true about the theoretical probability of rolling a sum of 7 and the student's experimental results of rolling a sum of 7?

- A. The theoretical probability is less than the experimental probability.
 - B. The theoretical probability is greater than the experimental probability.
 - C. The theoretical and experimental probabilities are equal.
 - D. There is insufficient information to compare the theoretical and experimental probabilities.
3. A cafeteria offers a lunch special where customers can choose a drink, sandwich and dessert. They have a choice of 3 types of drinks – soda, water, or juice; 4 types of sandwiches – turkey, ham, beef, or veggie; and 2 types of desserts – cookie or pie. What is the probability that a random customer will order a lunch special with water, turkey sandwich, and pie?
 4. What is the difference between independent and dependent events?
 5. The probability of one event is $\frac{5}{8}$. The probability of a second event is $\frac{2}{3}$. Which is more likely to occur?
 6. There are 200 students in a high school senior class. Of the students in the senior class, 70 are taking physics and 120 are taking chemistry. Of the students in those two groups, 50 are taking both physics and chemistry. What is the probability that a randomly selected senior is taking **neither** physics nor chemistry?

Probability

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Quiz

1. What is the formula for theoretical probability?
2. A student flips a fair coin 5 times and gets heads on every flip. What is his experimental probability, and how does it compare with the theoretical probability of the same event?
3. Two number cubes are rolled. What is the probability of rolling a sum of 6?
4. Two shirts are chosen at random from a closet. The first shirt is replaced before the second shirt is chosen. These are examples of _____ events. (Choose from independent or dependent.)
5. What is the probability of an impossible event? (For example, rolling a 7 on a six-sided die.)
6. When rolling two fair, six-sided dice and flipping a coin, what is the probability of rolling any sum **other than 7** and the coin landing on **tails**?

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ANSWERS

Review 1 – Answers

1. number of outcomes in the sample space
2. false
3. $\frac{2}{7}$
4. independent; dependent; independent
5. $P_1 \cdot P_2$
6. $\frac{1}{16}$

Review 2 Answers

1. $\frac{\text{number of favorable outcomes}}{\text{number of outcomes in the sample space}}$
2. experimental probability uses the actual number from an experiment, where the theoretical probability uses the possible number
3. $\frac{1}{4}$
4. independent; $\frac{1}{8}$
5. $P_1 + P_2$
6. $\frac{7}{36}$

Review 3 Answers

1. 52
2. Experimental = $\frac{2}{3}$; Theoretical = $\frac{1}{2}$; $\frac{2}{3} > \frac{1}{2}$
3. $\frac{5}{12}$
4. dependent; $\frac{1}{5}$
5. $1 - P$
6. $\frac{1}{6}$

Review 4 Answers

1. $0 \leq P \leq 1$; 1
2. A
3. $\frac{1}{24}$
4. Independent events – the result of the first event does not affect the result of the second event;
Dependent events – the result of the first event affects the result of the second event
5. the second event
6. $\frac{3}{10} = 0.3$

Quiz – Answers

1. $\frac{\text{number of favorable outcomes}}{\text{number of outcomes in the sample space}}$
2. Experimental = 1 > Theoretical
3. $\frac{5}{36}$
4. independent
5. 0
6. $\frac{5}{12}$