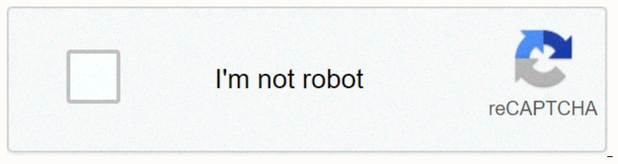

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Chapter 11 understanding randomness answers

Chapter 11 About Randomness Remember About Randomness: 1. You can't predict the outcome. And 2. If you want to make things fair (e.g. games) some underlying set of results should be more likely to happen in the same way. Because of randomness, patterns often tend to appear [think: flip coins.. Each result is random, but after flipping thousands of times, the head tends to appear 50% of the time. Use this randomness as a tool in statistics. Random numbers can be generated from calculators, websites, etc. Use them from a calculator or a table of random numbers. The simulation uses random processing (flipping coins, selecting numbers from random numeric tables, pulling cards from decks, etc.) to represent something. The simulation consists of trials. Trial – A one-time simulation process that answers probability questions. The exam consists of components. Components are the basic building blocks of a simulation. It's a single act that is repeated over and over again, such as flipping a coin, opening a box of cereals, or rolling a die. If you run several components until an answer to the question is created, a single attempt is made. Simulation |Trial | Building component simulations 1. Identify the components that you want to repeat. Describes how to model the results of a component. Learn how to combine components to model a trial version. Clearly state what the response variable is. Make some attempts. Collect and summarize the results of all trials. State your conclusion taken from BVD p258Notes: more trials are better [but in the real world, more trials, more expensive.] Between 20 and 30 tests by hand are reasonable. Even better is to run hundreds of exams using a computer or calculator. Histograms and boxpaches are good for summarizing randomly generated responses. Indicates the scale of the center and spread. Continue reporting outs. In the AP exam, students are given a section of the table and asked to demonstrate their procedure by marked directly on it. Students should be able to explain clearly enough the steps they can follow the instructions to run the simulation. Of particular importance is to be aware of issues such as skipping irrelevant numbers and avoiding repeated numbers when the situation does not involve replacement. You can also send students to the Internet for random numbers. No random numbers are required to run the simulation. Hitting coins, rolling the dice, or pulling cards from the deck are among the many other things that can form the basis of a simulation. Chapter 1 11 – Understanding Randomness 1. What is a Random Event?results before it happens. Let's try the experiment. There are four numbers on the next page. Randomly select one of the numbers and write it down. Chapter 2 11 – Select one of the random numbers that understand randomness and write it down. Don't show anyone. I chose the number_ 3 August 24th, 2015 Results 4 Chapter 11 – Understanding Everyone's Randomness 5% Number of All People 1 75% Number 3 20% Everyone Chooses 2 or 4 Humans Don't Work Just By Randomly Choosing Something.5 Chapter 11 – Vocabulary 3.Pseudo-Random numbers – Computers generated by computers when using computer random number generators Computers can't really generate random numbers. Instead, use a random number table. Chapter 6 11 – Understanding Randomness Chapter 7 11 – Calculator Skill Select Random Integer Mathematics 'PRB' tab '5: randInt(' 4.RANDINT (Low, High, Number of Numbers) Landint (1,100,5) generates five random integers between 1 and 100. Chapter 8 11 – Calculator Skill 5. If the calculator starts at the same location in the calculator's random number table, all TI-84s generate the same pseudo-random number integer. Seeding a calculator means telling the calculator where to start with that random number table. Chapter 9 11 – Calculator Skill Seed Random Number Generator 1) Number 2) STO> 3) Select math 'PRB' tab '1: Land' Seed: 0 ✉ Land 10 Chapter 11 – Calculator Skill Seed Random Number Generator Results: 95 91 15 52 41 Seed: 0 ✉ rand Generation 5 Random numbers 1 to 100: RANDIN 100, 5) These are pseudo-random numbers only. Because the results were predictable. 11 Test time Put your name on the top of the paper and number from 1 to 30. Each question is multiple choices and there are five choices. A, B, C, D, E GO! Do you need a question? So guess if you admit you didn't study. You have 30 seconds. 12 Test time is up. I believe in you. Grade your work. How did you do it? Do you know the probability of passing? (This is a later chapter.) But let's see how to figure it out in this chapter. 16.B 13 Chapter 11 – Vocabulary 6.Simulation – Consists of a sequence of random results that model the situation 14 Chapter 11 – Understand randomness 7.Run the simulation Step 1.Identify the components to repeat. 2. Explain how to model the results. 3. Learn how to simulate a trial. 4. Clearly state the response variable 5. Run some exams. 6. Analyze response variables. 7. State your conclusions in context. The results of interest from the trial are called response variables. Chapter 16 11 – Understanding Randomness 8. 38% of people in the United States have type O-positive blood. Three unrelated people in the United States are randomly selected. Design a simulation to determine how often all three have type O-positive blood. Chapter 17 11 – Understanding Randomness 8. 38% of people in the United States have type O-positive blood. Three unrelated people in the United States are randomly selected. Design a simulation to determine how often all three have type O-positive blood. A. Identify the components that you want to repeat. Ingredients: Check one person's blood type. Chapter 18 11 – Understanding Randomness 8. 38% of people in the United States have type O-positive blood. Three unrelated people in the United States are randomly selected. Design a simulation to determine how often all three have type O-positive blood. A. Identify the components that you want to repeat. Ingredients: Check one person's blood type. B. Describes how to model the results. 00 to 37 represents the person who has type O positive blood in the selected person. 38 – 99 means that the selected person does not have type O positive blood. Chapter 19 11 – Understanding Randomness 8. 38% of people in the United States have type O-positive blood. Three unrelated people in the United States are randomly selected. Design a simulation to determine how often all three have type O-positive blood. c. Learn how to simulate a trial. Each trial consists of identifying three digits as Y (person is O positive) or N (person is not O positive). Each pair represents one person. We want three. d. Clearly specify the response variable. The response variable is whether all three have type O-positive blood type. 20 8. 38% of people in the United States have type O-positive blood. Three unrelated people in the United States are randomly selected. Design a simulation to determine how often all three have type O-positive blood. E. Run several trial versions. You can run eight attempts using the following random #Outcomesします: 1 2 3 4:30/Y 73/N 47/NNO 15/Y71/N 83/N NO 72/N 27/Y 97/N NO NO 1 12/Y25/Y 77/N NO 7 29/Y 28/Y 31/Y N 1 1 Chapter 1 Random understanding 38% of U.S. people have type O positive blood. Three unrelated people in the United States are randomly selected. Design simulations to determine all frequenciesYou will have type O positive blood. F. Analyze response variables. 2/8 or 25% of the trials, all three were O+g. State your conclusions in context. Our simulations showed that if three unrelated people in the U.S. were randomly selected, all three were about 25% of the O+. Note, however, that only eight attempts were made. Chapter 22 11 – Understanding randomness 1. Identify repeating components. 2. Explain how to model the results. 3. Learn how to simulate a trial. 4. Clearly state the response variable 5. Run some exams. 6. Analyze response variables. 7. State your conclusions in context. Review simulation procedures Chapter 23 - Understanding randomness 9. 38 out of 100 people in the U.S. have type O-positive blood. Design a simulation that determines the average number of people who need to be randomly selected to get one person with type O positive blood. Chapter 24 11 – Understanding Randomness 9. 38 out of 100 people in the U.S. have type O-positive blood. Design a simulation that determines the average number of people who need to be randomly selected to get one person with type O positive blood. A. Identify the components that you want to repeat. Ingredients: Check the blood type of 1 person b. Describes how to model the results. 01 to 38 means that the selected person has type O positive blood. 39 – 99 & 00 means that the selected person does not have type O positive blood. Chapter 25 11 – Understanding Randomness 9. 38 out of 100 people in the U.S. have type O-positive blood. Design a simulation that determines the average number of people who need to be randomly selected to get one person with type O positive blood. c. Learn how to simulate a trial. Each trial consists of identifying a pair of numbers as N (a person is not O positive) or Y (a person is O positive). Each pair represents one person. We will continue to check until a person is identified as having O+ blood. d. Clearly specify the response variable. The response variable is the number of individuals checked to find the first person with type O positive blood. 26 9. In the United States, 38 out of 100 people have type O-positive blood. Design a simulation that determines the average number of people who need to be randomly selected to get one person with type O positive blood. E. Run several trial versions. Attempts #Outcomes #of People 1 2 3 4 5 95/N 83/N462/N25/Y 30/Y 1 91/N 78/N58/N02/Y 4 10/Y 1 34/Y 1 27 Chapter 11 – Understanding Randomness 11. 38 out of 100 people in the U.S. have type O-positive blood. Design a simulation that determines the average number of people who need to be randomly selected to get a person with type O.Blood. F. Analyze response variables. 4+1+4+1+1+1+1+1+1+1+1+1+1+1+1+1+1+4+4 = 24 24/12 = 2 g. Our simulations showed that if unrelated people in the U.S. were randomly selected, they would have to choose two on average. Note, however, that only 12 attempts were made. Chapter 28 11 – Understanding randomness 1. Identify repeating components. 2. Explain how to model the results. 3. Learn how to simulate a trial. 4. Clearly state the response variable 5. Run some exams. 6. Analyze response variables. 7. State your conclusions in context. Review simulation procedures Chapter 29 - Understanding randomness 10. Design a simulation to determine on average how many times someone rolls a pair of dice to get a snake's eye (two eyes). A. Identify the components that you want to repeat. Components: The chances of rolling a pair of dice at a time of 30 with a snake's eye are not the same as the chances of rolling 7. Fill out the table below to see this. ONETWOTHREEFFIVESIX 1 TWO FOUR SIX 2 34567 3 4 5 6 7 7 5 5 5 5 5 5 7 7 7 7 9 10 7 8 9 10 12 2: 1/363: 2/364: 3/365: 4/366: 12 5/36 7: 6/368: 5/369: 4/3610: 3/3611: 2/36 12: 1/1 36 31 Chapter 11 – Understand randomness 10. Design a simulation to determine on average how many times someone rolls a pair of dice to get a snake's eye (two eyes). B. Describes how to model the results. 00 represents rolling snake's eye. 01-35 should represent that you are not rolling the snake's eye. Ignore 36– 99. If you find a pair in this set, check the next pair of digits. Chapter 32 11 – Understanding Randomness 10. Design a simulation to determine on average how many times someone rolls a pair of dice to get a snake's eye (two eyes). c. Learn how to simulate a trial. Each trial consists of identifying a pair of numbers as N (not snake's eye) or Y (snake's eye) or I (ignored). Each pair represents one roll of two dice. If you ignore pairs of numbers, they do not count as rolls of dice. When the snake's eye rolls, the trail ends. d. Clearly specify the response variable. The response variable is how many rotations a pair of dice have made to get the snake's eye. Chapter 33 11 – Understanding Randomness 10. Design a simulation to determine the average number of times someone can roll a pair of dice to get a snake's eye (two eyes). E. Run several trial versions. Run two trials using the following random numbers: T#T# AccountsCt1 2 I INI ININ in IIN I Y 8 65358 70469 871 49 89509 75169 72002 20582 05092088088052088808888888 911 60767 55248 79253 00317 84120 77772 50103 75642 64510 79185 86109 67056 01991 14620 23598 88515 I 35696 NN N N I Y 10 34 Chapter 11 – Understanding randomness 10. Design a simulation to determine the average number of times someone can roll a pair of dice to get a snake's eye (two eyes). F. Analyze response variables. 8 + 10 = 18 18/2 = 9 hours. State your conclusions in context. From our simulation, we expect to rotate a pair of dice nine times to get snake's eye on average. Note, however, that only two attempts were made. Chapter 35 11 – Understanding Randomness How often do people completely guess the 11.29 question exam? A. Identify the components that you want to repeat. Component: B. Describes how to model the results in a single test question. Since there is a 20% chance of guessing correctly, .0 – 1 correctly represents guessing 2 – 9 does not correctly guess expressions 36 Chapter 11 – randomness 11. How often do people who fully guess the 29-question exam pass the exam?c. Explain how to simulate the trial. Each attempt is a configuration that identifies the number as R (positive guess) or W (guess wrong). Each number represents a single question. I have 29 questions, so I stop after checking 29 digits. d. Clearly specify the response variable. Since 21 out of 29 have passed, how often did the response variable pass the exam with 21 questions answered correctly? E. Run several trial versions. You were given a random number table. How many trails can you run? F. Analyze response variables. How many times has anyone passed the trial? G. State your conclusions in context. What is your conclusion? Bve.

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