

Washington State Math Championship 2008
Probability & Statistics – 5th grade

Answer as a reduced fraction unless otherwise stated.

1. If you randomly select a letter from the words “Washington State Math Championship,” what is the probability that it is a vowel?
2. A single card is drawn randomly from a deck of cards. This deck does not include jokers. What is the probability the card chosen is an even number or a heart?
3. At the beginning of the year, a business owed \$30,000 for a loan. The owner did the best he could to pay off this debt, and at the beginning of the next year the business only owed \$5904. What was the average monthly payment for this loan?
4. In the popular casino game *Craps*, a player rolls two dice and hopes the dice show a sum of 7 or 11. What is the probability of getting a sum of 7 or 11 with one throw of the dice?
5. The average IQ of a four-person math team was 140. However, one team member was sick and had to be replaced the day before the competition by a different student. Now this four-person team has an average IQ of 144. What is the IQ of the new team member?
6. Kelli’s cookie jar contains 5 chocolate chip cookies, 5 oatmeal, 5 peanut butter, and 5 sugar cookies. What is the probability she randomly chooses a chocolate chip cookie, eats it, then randomly chooses a sugar cookie?
7. A piggy bank contains four coins: a half-dollar, a quarter, a dime, and a nickel. Three coins are randomly taken out of the piggy bank. What is the probability that the three coins will total at least 55 cents?
8. How many times should a coin be tossed to have at least a 95% chance of it landing “heads” up at least one time?

9. In a telephone survey, 1000 adults were asked if they had a child in college, and they were asked if they thought most college students needed to borrow too much money to pay for their college education. The proportions responding in each category are shown in this probability table:

	College students borrow too much	Right amount	College students borrow too little
Child in college	0.35	0.08	0.01
No child in college	0.25	0.20	0.11

Suppose one responding adult is randomly selected from this group. If this person has a child in college, what is the probability that this person believes college students borrow too much money?

10. In a color preference experiment, eight cars are placed in a container. The cars are identical except for color: two are orange and six are purple. A child is asked to choose two cars at random. What is the probability that the child chooses the two red cars?