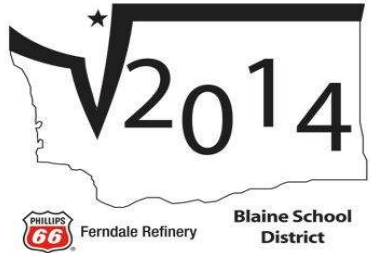


Probability and Statistics 5th Grade

Bubble in your answers on the answer sheet. Be sure to erase all mistakes completely. You do not need to bubble in leading zeros – the answer of “7” does not need to be answered as “007”. If your answer is a fraction like $\frac{3}{16}$, bubble in 316.

- 2 points:** A bag of mystery flavored jelly beans has 2 red, 12 speckled, 4 yellow, and 6 see-through jelly beans. If a jelly bean is randomly selected from the bag, what is the probability that it will either be yellow or speckled? **Express your answer as a reduced fraction.**
- 2 points:** At a bake sale, 20 cookies sold for \$0.75 each, 12 brownies for \$1.25 each, and 8 mini-cupcakes for \$0.25 each. What was the average cost, in cents, of one of the bakery items?
- 2 points:** Mr. Probst gave a test to 20 of his math students, who had an average score of 75. The next day, the 5 math students that were absent the previous day took the same test. If the possible scores can range from 0 to 100, what is the positive difference between the greatest and least possible average class scores after the students who were absent took the test?
- 3 points:** At summer camp, there are seven different activities, each lasting one hour, for your two-hour free time. If you cannot do an activity more than once, how many distinct schedules for your free time could you have? Note that doing activity A then activity B is different than doing activity B then activity A.
- 3 points:** When rolling three fair six-sided dice, what is the probability that all three dice will match? **Express your answer as a reduced fraction.**
- 3 points:** If the average of a set of 12 unique positive integers is 25, what is the greatest possible integer in that set?
- 3 points:** In the classic mismatched sock drawer, there are 4 pink socks, 3 blue socks, and 3 green socks. If two socks are randomly chosen from the drawer without replacement, what is the probability that you will have pulled a matching pair? **Express your answer as a reduced fraction.**

8. **4 points:** Jacob and Smokey were playing heads-or-tails, where Jacob would win if a fair coin were to land on heads, and Smokey would win if it were to land on tails. On the first flip, the coin lands on heads, so Jacob won. Naturally, Smokey then asked Jacob if he would like to play for the first to two wins. What is the probability that Jacob will still win? **Express your answer as a reduced fraction.**
9. **4 points:** A fair six-sided die is rolled. The number that comes up determines the number of fair coins that are flipped. What is the probability that every coin that is flipped will be heads? **Express your answer to the nearest percent.**
10. **4 points:** A friend shows you five bags of marbles. The first four bags contain 3, 9, 10, and 2 marbles. He also tells you that the mean and median number of marbles in the bags are equal. What is the smallest possible number of marbles that are in the fifth bag?

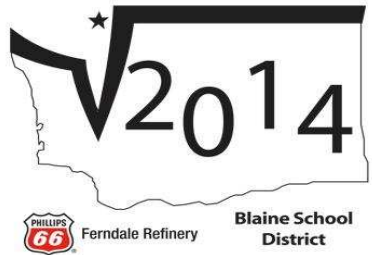


Probability and Statistics 6th Grade

Bubble in your answers on the answer sheet. Be sure to erase all mistakes completely. You do not need to bubble in leading zeros – the answer of “7” does not need to be answered as “007”. If your answer is a fraction like $\frac{3}{16}$, bubble in 316.

- 2 points:** At summer camp, there are seven different activities, each lasting one hour, for your two-hour free time. If you cannot do an activity more than once, how many distinct schedules for your free time could you have? Note that doing activity A then activity B is different than doing activity B then activity A.
- 2 points:** When rolling three fair six-sided dice, what is the probability that all three dice will match? **Express your answer as a reduced fraction.**
- 2 points:** If the average of a set of 12 unique positive integers is 25, what is the greatest possible integer in that set?
- 3 points:** In the classic mismatched sock drawer, there are 4 pink socks, 3 blue socks, and 3 green socks. If two socks are randomly chosen from the drawer without replacement, what is the probability that you will have pulled a matching pair? **Express your answer as a reduced fraction.**
- 3 points:** Jacob and Smokey were playing heads-or-tails, where Jacob would win if a fair coin were to land on heads, and Smokey would win if it were to land on tails. On the first flip, the coin lands on heads, so Jacob won. Naturally, Smokey then asked Jacob if he would like to play for the first to two wins. What is the probability that Jacob will still win? **Express your answer as a reduced fraction.**
- 3 points:** A fair six-sided die is rolled. The number that comes up determines the number of fair coins that are flipped. What is the probability that every coin that is flipped will be heads? **Express your answer to the nearest percent.**
- 3 points:** A friend shows you five bags of marbles. The first four bags contain 3, 9, 10, and 2 marbles. He also tells you that the mean and median number of marbles in the bags are equal. What is the smallest possible number of marbles that are in the fifth bag?
- 4 points:** Using the digits 1, 2, 3, 4, and 5 each exactly once, how many five-digit even integers can be formed?

9. **4 points:** Two standard six-sided dice are rolled. What is the probability that either the sum or the product of the two numbers showing on top will be prime? **Express your answer to the nearest percent.**
10. **4 points:** In one bucket, there are twelve blue chips and four green chips. In a second bucket, there are three blue chips and twelve green chips. A chip is randomly selected from the first bucket and put into the second bucket. After that, a chip is randomly selected from the second bucket. What is the probability that the chip will be blue? **Express your answer to the nearest tenth of a percent.**

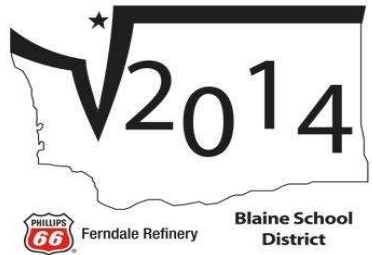


Probability and Statistics 7th Grade

Bubble in your answers on the answer sheet. Be sure to erase all mistakes completely. You do not need to bubble in leading zeros – the answer of “7” does not need to be answered as “007”. If your answer is a fraction like $\frac{3}{16}$, bubble in 316.

- 2 points:** In the classic mismatched sock drawer, there are 4 pink socks, 3 blue socks, and 3 green socks. If two socks are randomly chosen from the drawer without replacement, what is the probability that you will have pulled a matching pair? **Express your answer as a reduced fraction.**
- 2 points:** Jacob and Smokey were playing heads-or-tails, where Jacob would win if a fair coin were to land on heads, and Smokey would win if it were to land on tails. On the first flip, the coin lands on heads, so Jacob won. Naturally, Smokey then asked Jacob if he would like to play for the first to two wins. What is the probability that Jacob will still win? **Express your answer as a reduced fraction.**
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- 3 points:** Two standard six-sided dice are rolled. What is the probability that either the sum or the product of the two numbers showing on top will be prime? **Express your answer to the nearest percent.**
- 3 points:** In one bucket, there are twelve blue chips and four green chips. In a second bucket, there are three blue chips and twelve green chips. A chip is randomly selected from the first bucket and put into the second bucket. After that, a chip is randomly selected from the second bucket. What is the probability that the chip will be blue? **Express your answer to the nearest tenth of a percent.**

8. **4 points:** In a tiny school at the North Pole, the teachers' lounge has 6 different colored seats. If 4 teachers wanted to use the lounge at the same time, how many unique arrangements are there for how they could sit?
9. **4 points:** In Slipsville, there is a 15% chance on a non-rainy day and a 40% chance on a rainy day that someone will get into an accident. If it rains in Slipsville 40% of the time, what is the probability that there will be an accident on any given day? **Express your answer as a percent.**
10. **4 points:** Your rusty old bicycle is able to get you to school without any problems 30% of the time. What is the probability that it will get you to school without any problems exactly twice during a six-day school week (sorry, you have Saturday school!)? **Express your answer to the nearest percent.**



Probability and Statistics 8th Grade

Bubble in your answers on the answer sheet. Be sure to erase all mistakes completely. You do not need to bubble in leading zeros – the answer of “7” does not need to be answered as “007”. If your answer is a fraction like $\frac{3}{16}$, bubble in 316.

- 2 points:** A friend shows you five bags of marbles. The first four bags contain 3, 9, 10, and 2 marbles. He also tells you that the mean and median number of marbles in the bags are equal. What is the smallest possible number of marbles that are in the fifth bag?
- 2 points:** Using the digits 1, 2, 3, 4, and 5 each exactly once, how many five-digit even integers can be formed?
- 2 points:** Two standard six-sided dice are rolled. What is the probability that either the sum or the product of the two numbers showing on top will be prime? **Express your answer to the nearest percent.**
- 3 points:** In one bucket, there are twelve blue chips and four green chips. In a second bucket, there are three blue chips and twelve green chips. A chip is randomly selected from the first bucket and put into the second bucket. After that, a chip is randomly selected from the second bucket. What is the probability that the chip will be blue? **Express your answer to the nearest tenth of a percent.**
- 3 points:** In a tiny school at the North Pole, the teachers’ lounge has 6 different colored seats. If 4 teachers wanted to use the lounge at the same time, how many unique arrangements are there for how they could sit?
- 3 points:** In Slipsville, there is a 15% chance on a non-rainy day and a 40% chance on a rainy day that someone will get into an accident. If it rains in Slipsville 40% of the time, what is the probability that there will be an accident on any given day? **Express your answer as a percent.**
- 3 points:** Your rusty old bicycle is able to get you to school without any problems 30% of the time. What is the probability that it will get you to school without any problems exactly twice during a six-day school week (sorry, you have Saturday school!)? **Express your answer to the nearest percent.**
- 4 points:** If the letters in the word SPEED are randomly ordered, what is the probability that the first letter will be an E? **Express your answer as a reduced fraction.**

9. **4 points:** A start-up ice cream store has only 4 different flavors of ice cream. Assuming that the order does not matter, how many distinct 3-scoop cones of ice cream could you make?
10. **4 points:** If five cards are dealt from a standard 52-card deck, what is the probability that at least three of the cards will be of the same rank? For example, King, King, King, 4, 3 would count because there are three Kings. **Express your answer to the nearest tenth of a percent.**