Name: _____ Date: _____ Period: _____

**What Do You Expect Unit Test REVIEW Day 1**

**Standards**

| | |
|---|---|
| | 7.SP.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. [1, 2] |
| | 7.SP.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. [3, 4] |
| | 7.SP.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. [5, 6] |
| | 7.SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. [7-10] |

1. A deck of 12 cards labeled 1 through 12 is shuffled. One card is selected at random. Determine whether each statement correctly describes the likelihood of an event based on the given deck of cards. State True or False, and justify your answer with mathematical reasoning.

| Statement | True | False | Mathematical Reasoning |
|---|---|---|---|
| It is impossible that a card with a number greater than 13 is selected. | | | |
| It is likely that a card with a number greater than 2 is selected. | | | |
| It is certain that a card with an odd or even number is selected. | | | |
| It is unlikely that a card with a number less than 7 is selected. | | | |

2. Give an example of a situation with outcomes that are *not* equally likely.

3. This table shows outcomes of a spinner with 3 equal sections colored orange, blue and white.

| *Section* | *Outcomes* |
|---|---|
| **Orange** | 30 |
| **Blue** | 34 |
| **White** | 36 |

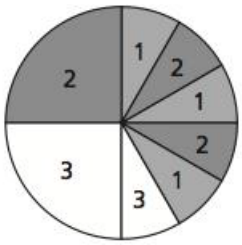
Based on the outcomes, enter the number of times the arrow is expected to land on the orange section if it is spun 20 times. **Show your thinking!**

4. Ann Marie has a spinner that is divided into four regions. She spins the spinner several times and records the results in a table. Based on her results, make a drawing of what the spinner might look like.

| **Region** | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Number of Times Spinner Lands in That Region** | 9 | 4 | 12 | 11 |

5. A fair coin is flipped 4 times. It lands facing heads down 3 out of 4 times. The probability of a coin landing heads down on one flip is ½. Why is the observed frequency different than the predicted probability?

6. Use the spinner below to answer the following questions.




**a.** You spin the spinner. Are the three possible outcomes 1, 2, and 3 equally likely? Explain.

**b.** If you spin the spinner 120 times, how many times would you expect to land on 2?

7. Matt has three pairs of dark socks and six pairs of white socks in his sock drawer. Each pair is rolled together. First, he will close his eyes to select a pair of socks. If the socks are dark, Matt will choose an outfit that includes the dress pants that his mother bought. If the socks are white, Matt will toss a coin. If he gets heads, he will wear jeans. If he gets tails, he will wear shorts.

**a.** What is the probability that Matt will wear white socks to school? Make a tree diagram to support your answer.

**b.** What is the probability that Matt will wear shorts to school?

**c.** What is the probability that Matt will wear dress pants to school?

**d.** What is the probability that Matt will wear jeans with dark socks?

**e.** Is Matt equally likely to wear dress pants, shorts, and jeans today? Explain your answer.

8. The Alphabet Game costs $.25 to play. Before the game, 26 slips of paper, each with a different letter of the alphabet on it, are put into a bag. A player draws one slip from the bag. If the player draws a vowel (A, E, I, O, or U), he or she wins $1.

**a.** What is the probability of winning the game?

**b.** What is the probability of losing the game?

**c.** If a player plays the Alphabet Game 26 times, how much money would you expect the player to win or lose? Explain your reasoning.

9. Maribeth makes 70% of her free throws when she is in a two-shot free-throw situation. Her coach notices that she gets nervous in a one-and-one free-throw situation and only makes 50% of those free throws.

   a. Construct an area model for each of Maribeth's free-throw situations.

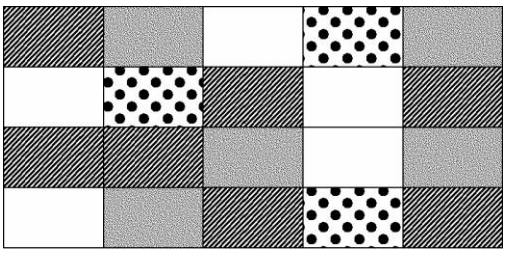
**Two-shot Free-throw Situation**

**One-and-one Free-throw Situation**

   b. What is Maribeth's average number of points per situation for each type of free-throw situation?

   c. Maribeth was fouled 50 times this season. Of these, 20 were two-shot free-throw situations and 30 were one-and-one free-throw situations. How many points would you expect her to have scored for free throws this season?

10. Irene randomly tosses a cube onto the grid below.



   **a.** What is the probability of the cube landing on a white rectangle? Express your answer as a percent.

   **b.** What is the probability of the cube landing on a dotted rectangle? Express your answer as a percent.

   **c.** What is the probability of the cube not landing on a white rectangle? Express your answer as a percent.

   **d.** Irene proposed the following game: If the cube lands on a striped square or a dotted square, Irene wins; if the cube lands on a white square or a gray square, Irene's sister wins. Is this a fair game? Explain your reasoning.