

**Just In Time Quick Check**  
**Standard of Learning (SOL) 7.8a**

**Strand:** Probability and Statistics

**Standard of Learning (SOL) 7.8a**

*The student will determine the theoretical and experimental probabilities of an event.*

**Grade Level Skills:**

- Determine the theoretical probability of an event.
- Determine the experimental probability of an event.

**Just in Time Quick Check**

**Just in Time Quick Check Teacher Notes**

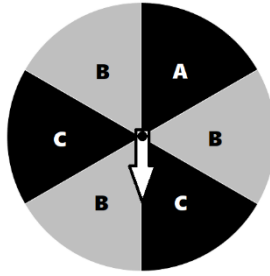
**Supporting Resources:**

- VDOE Mathematics Instructional Plans (MIPS)
  - [7.8ab - What are the Chances?](#) (Word) / [PDF Version](#)
- VDOE Algebra Readiness Remediation Plans
  - [Experimental vs. Theoretical](#) (Word) / [PDF](#)
  - [Rock Paper Scissors](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: Grade 7 ([Word](#)) | ([PDF](#))
  - Probability
  - Theoretical Probability
  - Experimental Probability
- Other VDOE Resources
  - [Beat the Odds \[eMediaVA\]](#)
  - [Probability and the Law of Large Numbers \[eMediaVA\]](#)
- Desmos Activity
  - [Last Taco](#)

Supporting and Prerequisite SOL: [6.2a](#), [6.2b](#), [5.2a](#), [5.2b](#), [5.15](#)

## SOL 7.8a - Just in Time Quick Check

1. Find the theoretical probability that the spinner below lands on the letter B. Write your answer as a fraction in simplest form.

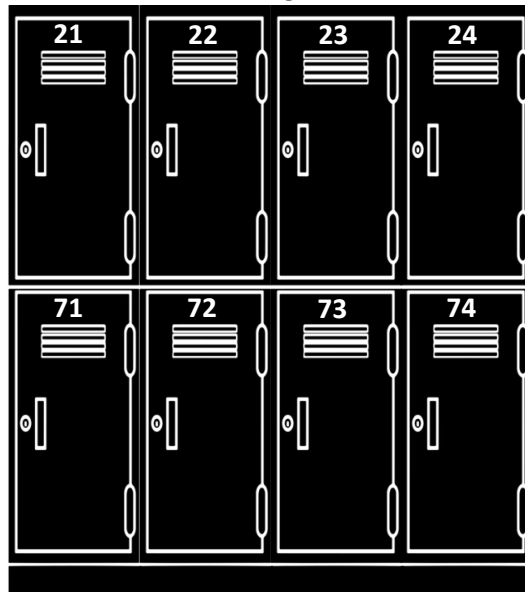


2. The sides of a fair number cube are labeled 1, 2, 3, 4, 5, and 6. What is the theoretical probability that the number cube will land with the number 5 facing up?
3. Max has eight circular chips that are all the same size and shape in a bag.



Max reaches into the bag and removes one circular chip. What is the theoretical probability that the circular chip has a star on it? Write your answer as a fraction, decimal, and percent.

4. A school principal wants to place a gift card inside one randomly selected 7<sup>th</sup> grade student's locker from those shown. What is the theoretical probability of the student's locker having a number that is a multiple of 3?



5. Tamara rolled a fair number cube with sides labeled 1, 2, 3, 4, 5, and 6. The table shows the results of rolling the fair number cube 20 times.

Tamara's Results

Number Landing Face Up	Frequency
1	4
2	4
3	2
4	3
5	2
6	5

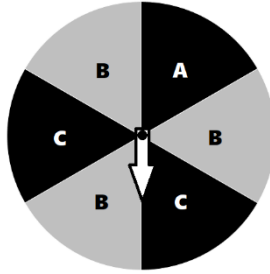
Determine the experimental probability that the number landing face up is a five.

6. A bag contained one red, one blue, and one green ball. Each ball in the bag is the same size and shape. Mr. Smith selected a ball from the bag without looking, recorded the color, and returned the ball to the bag. He did this four times, and the results were red, green, blue, green. Determine the experimental probability of Mr. Smith selecting a red ball from the bag.

## SOL 7.8a - Just in Time Quick Check Teacher Notes

### Common Errors/Misconceptions and their Possible Indications

1. Find the theoretical probability that the spinner below lands on the letter B. Write your answer as a fraction in simplest form.



*A common error a student may make is assuming if there are three letters on the spinner, each has the same probability of  $\frac{1}{3}$ . This may indicate that the student needs to develop more conceptual understanding of theoretical probability being the ratio of number of possible favorable outcomes to the total number of possible outcomes. Provide students with situations where the number of favorable outcomes is not the same for each event.*

2. The sides of a fair number cube are labeled 1, 2, 3, 4, 5, and 6. What is the theoretical probability that the number cube will land with the number 5 facing up?

*A common error some students make is using the desired outcome as part of the probability, naming the probability of landing on a 5 as  $\frac{5}{6}$ . This error may indicate that students do not understand the sample space of a fair number cube. Consider activities from the Algebra Readiness Remediation Plans, Rock Paper Scissors, which includes creating and analyzing the sample space of a situation.*

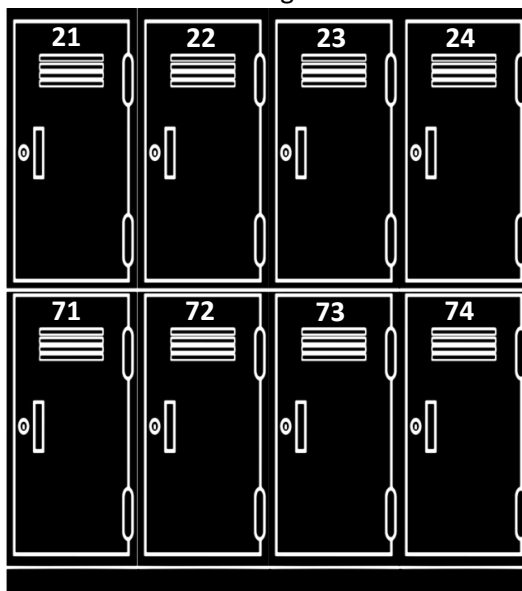
3. Max has eight circular chips that are all the same size and shape in a bag.



Max reaches into the bag and removes one circular chip. What is the theoretical probability that the circular chip has a star on it? Write your answer as a fraction, decimal, and percent.

*A common error is a student may correctly name the probability in fraction form, but not give the correct decimal and percent equivalencies. These students may need more experiences connecting decimals and percents and would benefit from using the Frayer Model in the MIP 6.2a Rational Speed Matching.*

4. A school principal wants to place a gift card inside one randomly selected 7<sup>th</sup> grade student's locker from those shown. What is the theoretical probability of the student's locker having a number that is a multiple of 3?



*A common error a student may make is thinking numbers that end in 3 are multiples of 3, listing the probability as  $\frac{2}{8}$  or  $\frac{1}{4}$ . This error might indicate a need to review mathematical vocabulary previously learned. Refer to the Grade 4 Mathematics Vocabulary Word Wall Cards and the Grade 5 Mathematics Vocabulary Word Wall Cards to review vocabulary of factors, multiples, prime, composite, even and odd.*

5. Tamara rolled a fair number cube with sides labeled 1, 2, 3, 4, 5, and 6. The table shows the results of rolling the fair number cube 20 times.

Tamara's Results

Number Landing Face Up	Frequency
1	4
2	4
3	2
4	3
5	2
6	5

Determine the experimental probability that the number landing face up is a five.

*A common error a student may make is calculating the experimental probability using the total number of possible outcomes instead of the number of trials in the experiment resulting in an incorrect answer of  $\frac{2}{6}$  or  $\frac{1}{3}$ . This may indicate a need to develop a conceptual understanding of theoretical and experimental probabilities. Provide students with more experiences calculating both experimental and theoretical probabilities from the same context. Refer to Part 1 of the MIP 7.8ab What are the Chances? for examples.*

6. A bag contained one red, one blue, and one green ball. Each ball in the bag is the same size and shape. Mr. Smith selected a ball from the bag without looking, recorded the color, and returned the ball to the bag. He did this four times, and the results were red, green, blue, green. Determine the experimental probability of Mr. Smith selecting a red ball from the bag.

*A common error students may make is incorrectly listing the theoretical probability of  $\frac{1}{3}$  instead of the experimental probability. This may indicate students need more experiences with the vocabulary. Refer to the Grade 7 Mathematics Vocabulary Word Wall Cards for a visual representation of experimental and theoretical probability.*