Teacher(s): Mrs. Breazeale & Ms. DeBlanc
Subject/Grade: 7th /Grade Math
Week of March 4, 2024
Domains: Statistics & Probability
Lesson Plan Title: Probability

Q3W8

MATHEMATICS - Mississippi College and Career Readiness Standards for 7th Grade

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.

ESSENTIAL QUESTION: How will I use a number line that ranges from 0 to 1 to explain the probability of an event happening?

Date	Focus Question	Objective	I will...
3/4 M	1. How do I represent the likelihood of an event on a number line 2. How do I determine if the probability of an event is, is closer to 0 or 1 for a given situation? 3. How will I know if an event as impossible, unlikely, equally likely, very likely, or certain.(PART 1)	In the RCC workbook, TSWBAT • Represent the likelihood of an event on a number line. • For a given situation, determine if the probability of an event is closer to 0 or 1. • Describe an event as impossible, unlikely, equally likely, very likely, or certain.	• Represent the likelihood of an event on a number line. • For a given situation, determine if the probability of an event is closer to 0 or 1. • Describe an event as impossible, unlikely, equally likely, very likely, or certain.
3/5 T	1) How do I represent the likelihood of an event on a number line 2) How do I determine if the probability of an event is, is closer to 0 or 1 for a given situation? 3) How will I know if an event as impossible, unlikely, equally likely, very likely, or certain.(PART 2)	On the teacher assigned iReady lesson titled "Understand Probability," TSWBAT... • Represent the likelihood of an event on a number line. • For a given situation, determine if the probability of an event is closer to 0 or 1. • Describe an event as impossible, unlikely, equally likely, very likely, or certain.	• Represent the likelihood of an event on a number line. • For a given situation, determine if the probability of an event is closer to 0 or 1. • Describe an event as impossible, unlikely, equally likely, very likely, or certain.
3/6 W	How will I analyze and correct a graded assessment to fine-tune my mathematical skills?	TSTBAT use the UNRAVEL strategy to solve assessment real-world problems in order to clear up any misconceptions.	-Use the UNRAVEL strategy to solve challenging problems. -Rework the most missed problems. -Develop an understanding of why mistakes were made on the MPT 3.6.
3/7 TH	TBA (Based on MPT 3.6 data.)	RCC workbook pages will correlate to the most missed standard on MPT 3.6..	-Practice a variety of new strategies on real-world mathematical problems.
3/8 F	What is the difference between theoretical and experimental probability? How can I use this knowledge to predict the outcome of future events?	TSWBAT predict the outcome of events by solving a variety of problems in their RCC workbook.	• Explain the difference between theoretical and expert probability. • Predict the outcome of events by issuing data from experiments and theories.

BELL RINGER

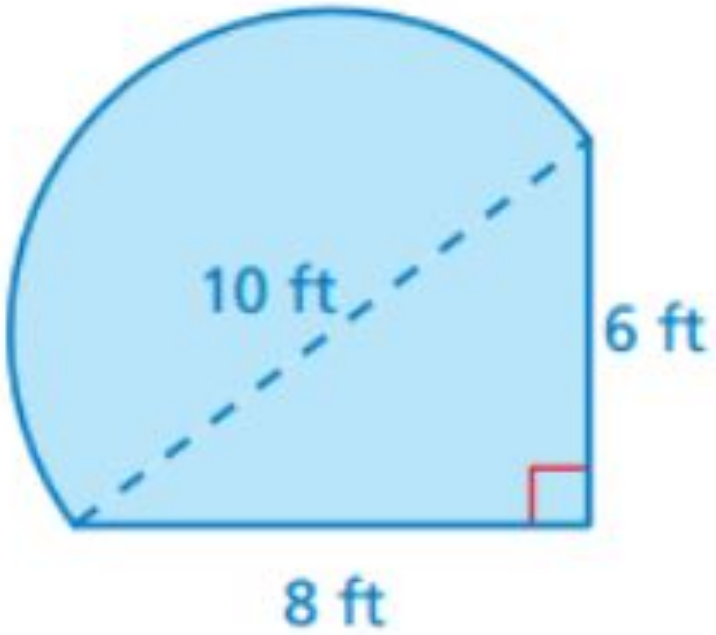
5 minutes

03/04/24 (Monday)

The figure is made up of a semicircle and a triangle.

Find the area of the figure.

Use $\pi = 3.14$



square feet

Independent Practice

In Volume 2 of your workbook, complete the following…

1. Read the family letter on page 673 (Lesson 30: Understand Probability)
2. Complete problems 1-4 on pages 675-676.

In Google Classroom…

- Choose "Probability Task Cards"
- Follow directions & Complete

Tip: Use the "Family Letter" on page 673 for help.

Page 673

LESSON 30

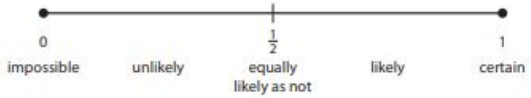
Understand Probability

Dear Family,

This week your student is exploring probability concepts.

Consider the **experiment** of rolling a number cube. Each of the numbers 1, 2, 3, 4, 5, and 6 is a possible **outcome** of the experiment. An **event** is a set of one or more outcomes. For example, rolling an even number is an event with the possible outcomes 2, 4, and 6. A **probability** describes the likelihood of an event occurring.

The probability that an event will happen can be described using both words and numbers.



Your student will be modeling problems like the one below.

> There are 3 green marbles, 3 red marbles, and 6 blue marbles in a bag. Ravi reaches into the bag and selects 1 marble without looking. Describe some different events from this experiment and their probabilities.

➤ **ONE WAY** to describe probabilities is with words.

- Selecting a yellow marble is *impossible*. There are no yellow marbles in the bag.
- Selecting a green or a blue marble is *likely*. More than half of the marbles are green or blue.
- Selecting a red marble is *unlikely*. Less than half of the marbles are red.

➤ **ANOTHER WAY** is to use numbers between 0 and 1.

- The probability of selecting either a green, a red, or a blue marble is 1. All marbles are one of those colors.
- The probability of selecting a blue marble is $\frac{1}{2}$. Half of the marbles are blue.
- The probability of selecting a red marble is less than $\frac{1}{2}$. Less than half of the marbles are red.

Use the next page to start a conversation about probability.

Read page 673

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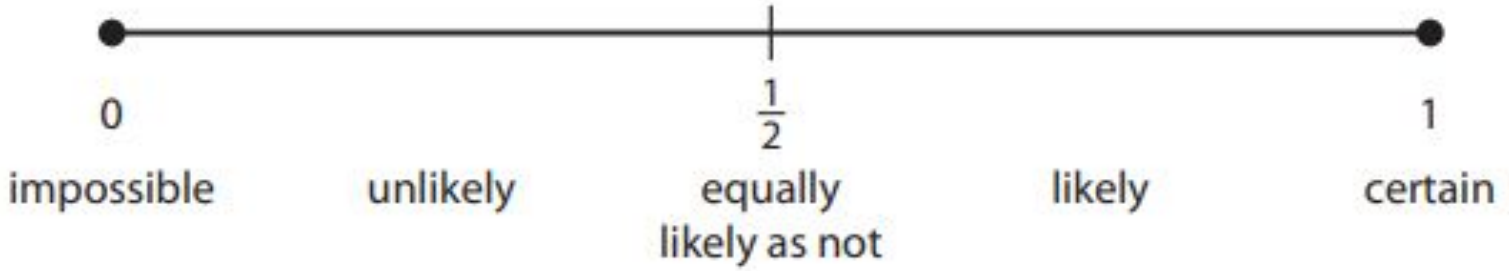

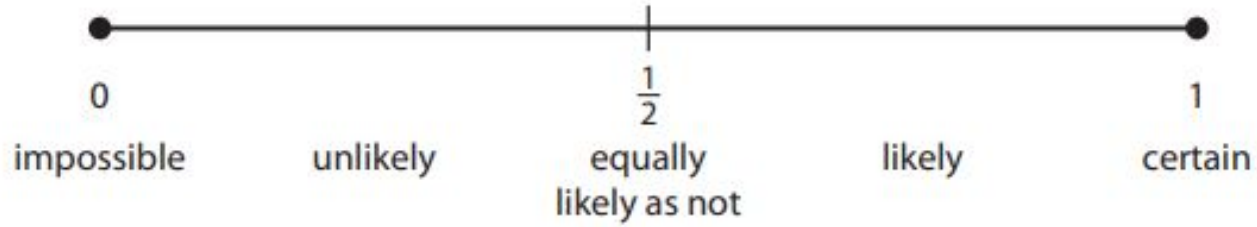

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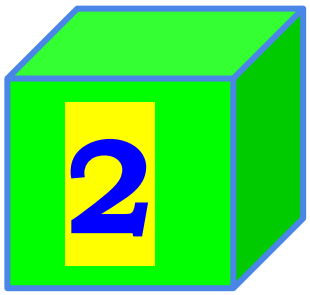
Read page 673



Independent Practice

Complete Page 675/ Problems 1a, 1b, & 1c.

Model It

➤ **Complete the problems about outcomes of an event.**

1 A standard number cube has six sides labeled 1 through 6. Think about rolling a number cube one time.

a. Is it more likely that the cube will show *a multiple of 2* or *a multiple of 3*?

b. How likely is the cube to show a 3?

c. Why is it just as likely that the cube will show an even number as an odd number?

Independent Practice

Complete Page 675/ Problems 2a, 2b, 2c & 2d.

2 Doing something where you cannot know the **outcome** is called an **experiment**. In problem 1, rolling the number cube is the experiment. The outcomes are the possible results of the experiment.

a. What are the possible outcomes of rolling a standard number cube?

b. An **event** is a set of one or more outcomes. What are the possible outcomes for the event of rolling a multiple of 2?

c. What are the possible outcomes for the event of rolling a multiple of 3?

d. What are the possible outcomes for the event of rolling an even

DISCUSS IT

Ask: Why do some events have only one outcome and others have more than one outcome?

Share: An event will probably happen when . . .

Independent Practice

Complete Page 676

Model It

➤ **Complete the problems about describing the likelihood of an event happening.**

3 **Probability** describes how likely an event is to occur. One way to describe probabilities is to use words. *Certain* describes an event that will occur. *Impossible* describes an event that can never occur. *Likely* describes events that will probably, but not certainly, occur. Events that will probably not occur, but could, can be described as *unlikely*. And if an event is as likely to occur as not occur, it can be described as *equally likely as not*.

Suppose you roll a standard number cube. Give the possible outcomes, if any, for each event.

Event	Outcomes	Probability
rolling a 7		impossible
rolling a number less than 2		unlikely
rolling a prime number		equally likely as not
rolling a number greater than 1		likely
rolling an integer		certain

DISCUSS IT

Ask: Why is rolling a 7 impossible?

Share: I think an event is certain when . . .

3 Independent Practice

Complete Page 676

4 **Reflect** Four cards are in a bag. Each card has a picture of a lion, a giraffe, a goat, or a leopard. One card is selected from the bag at random.

Name an event with the given probability.

a. Impossible

b. Certain

c. Equally likely as not

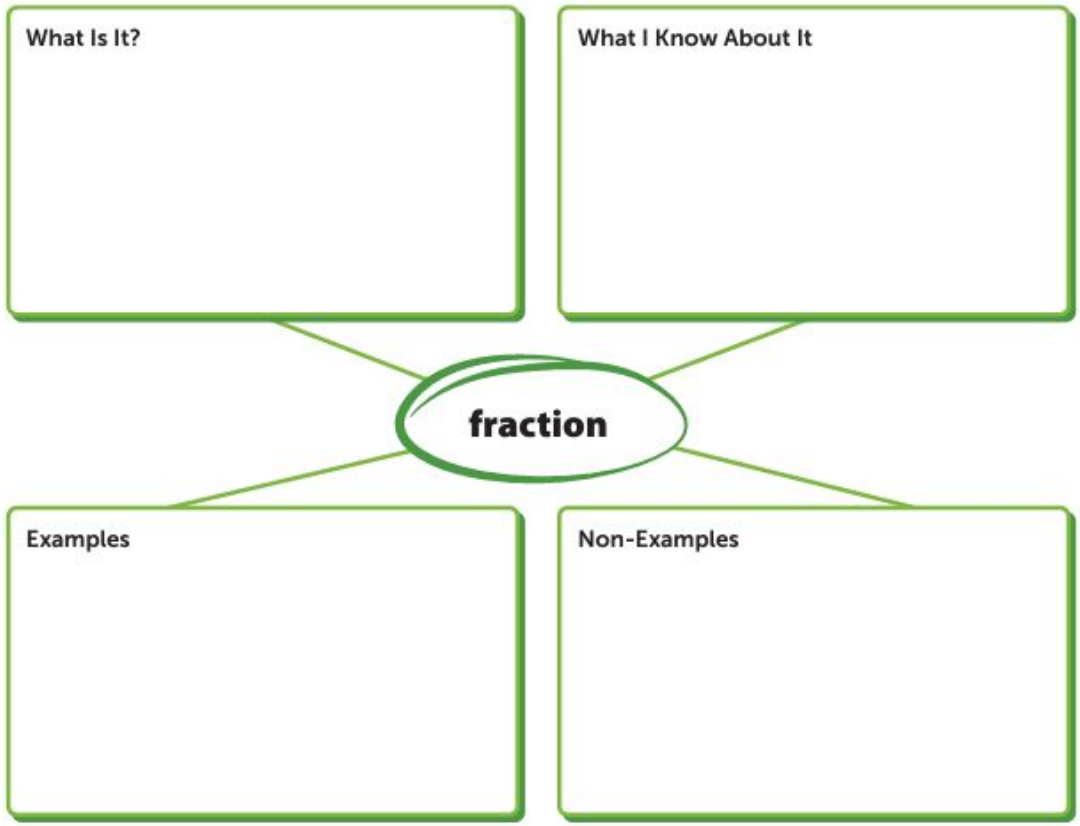
d. Unlikely

Independent Practice

Complete Page 677

Prepare for Understanding Probability

1. Think about what you know about fractions and rational numbers. Fill in each box. Use words, numbers, and pictures. Show as many ideas as you can.



2. Wyatt says the fraction $\frac{6}{7}$ means 7 sixths. Is he correct? Explain.

Independent Practice

Complete Page 678

➤ **Complete problems 3–5.**

3 A spinner has 5 equal-size sections numbered 1 through 5. The spinner is spun one time.

a. Is it more likely that the spinner will land on *an even number* or *an odd number*? Why?

b. How likely is it to spin a 1?

c. Why is it just as likely to spin a number greater than 3 as a number less than 3?

4 Use the spinner from problem 3.

a. What are the possible outcomes of spinning the spinner?

b. What are the possible outcomes for the event of spinning a prime number?

c. What are the possible outcomes for the event of spinning a factor of 4?

d. What are the possible outcomes for the event of spinning an even number? An odd number?

5 Suppose you spin the spinner from problem 3 once. Give the possible outcomes, if any, for each event.

Event	Outcomes	Probability
spinning a number less than or equal to 2		unlikely
spinning a factor of 6		likely
spinning a 6		impossible

Vocabulary

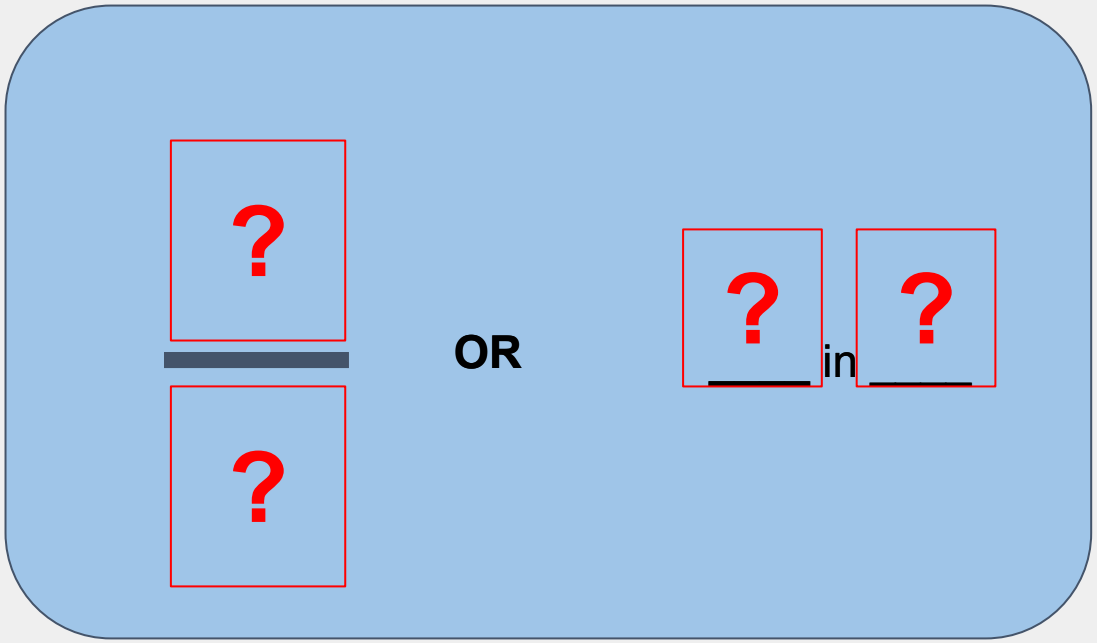
event
a set of one or more outcomes of an experiment.

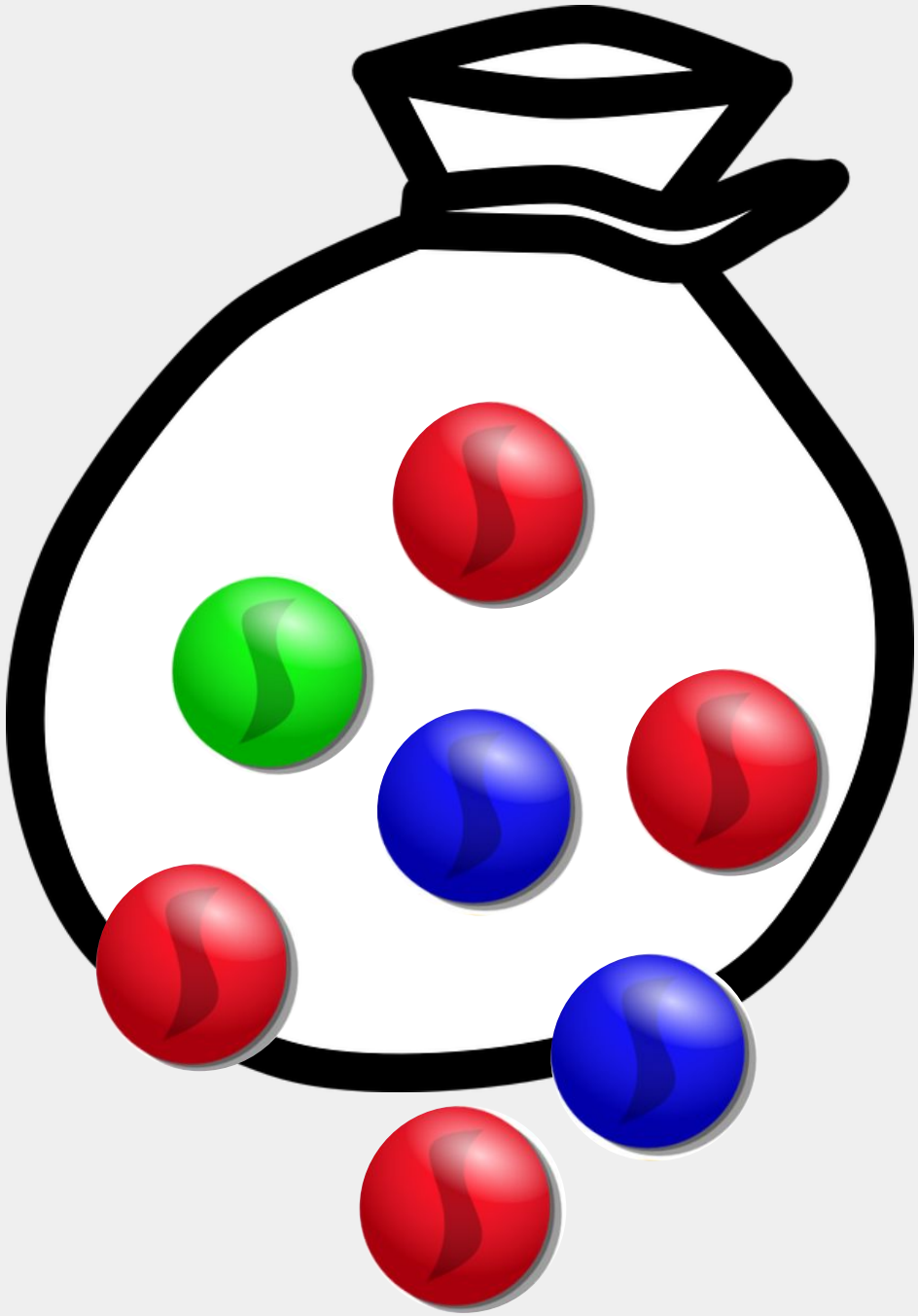
outcome
one of the possible results of a chance experiment.

probability
a number between 0 and 1 that expresses the likelihood of an event occurring.

1.

What is the probability that you will pull out a **red** marble?





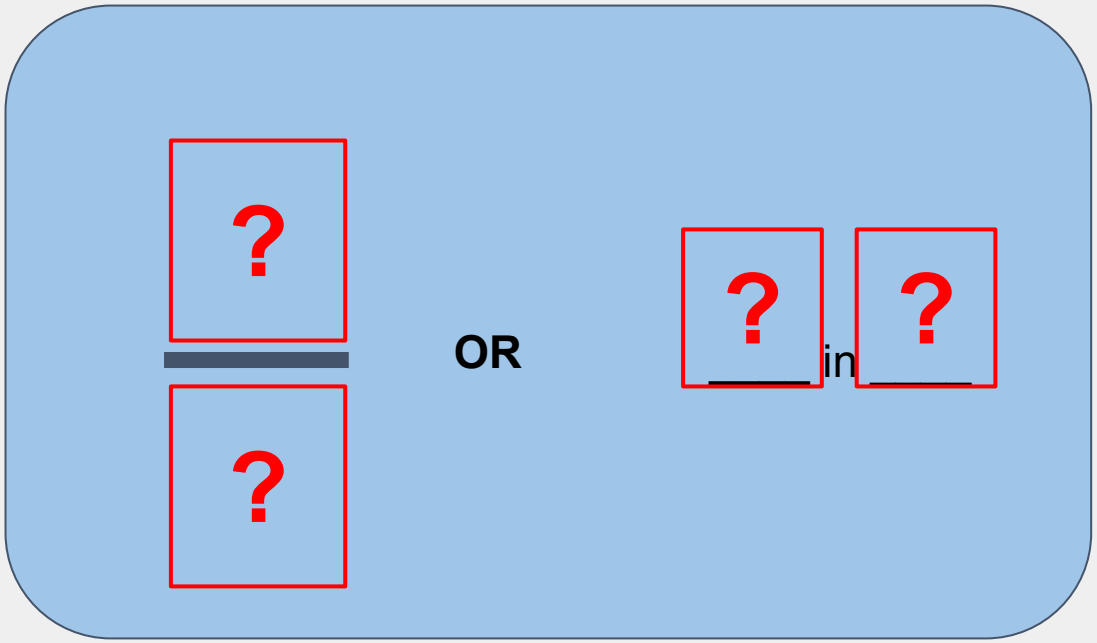
Is it… (circle the probability)

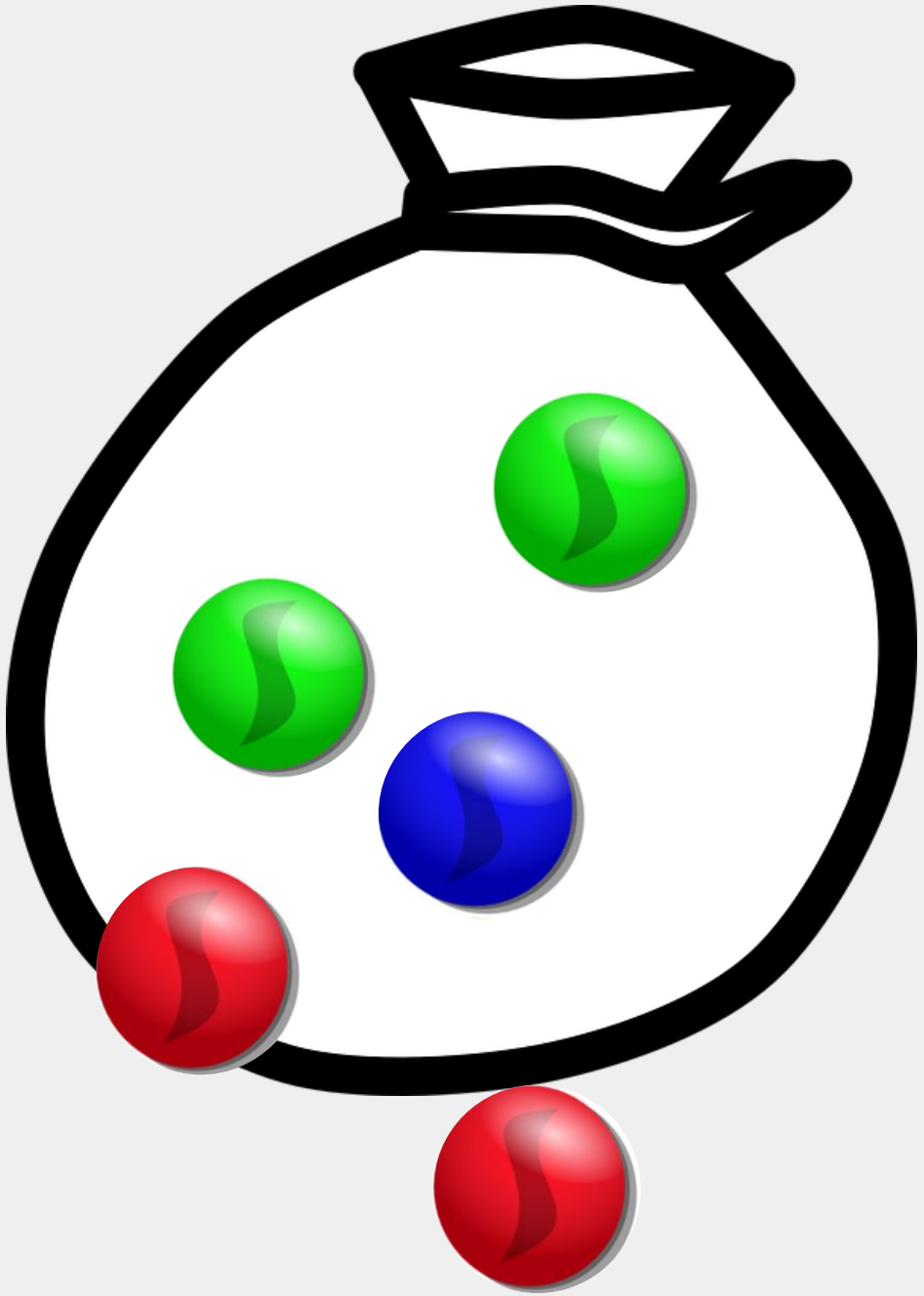
Certain **Likely** **Equally Likely**

Unlikely **Impossible**

2.

What is the probability that you will pull out a **blue** marble?





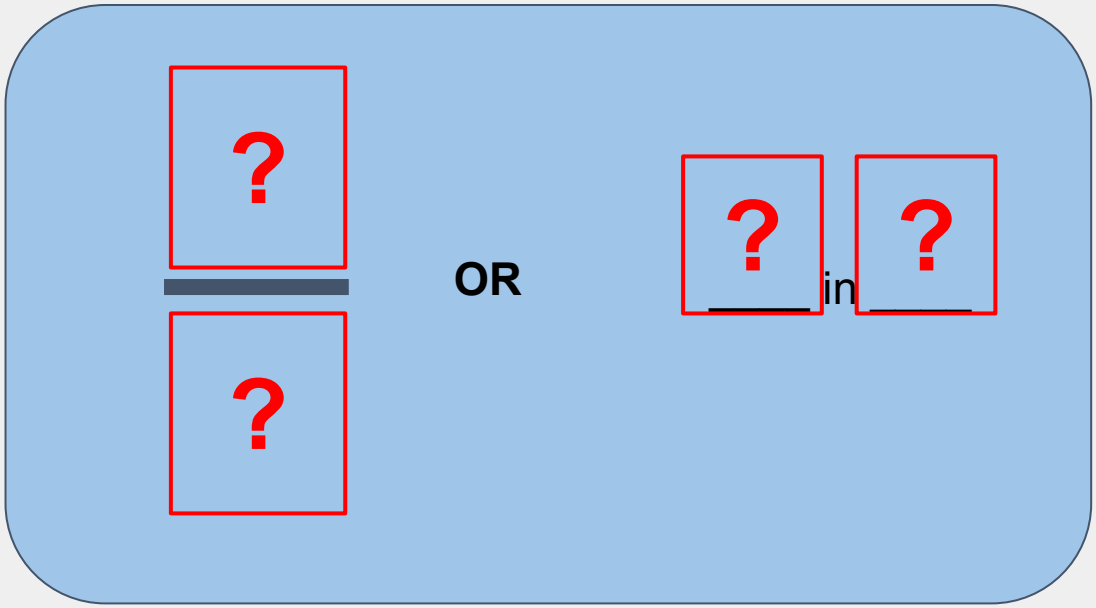
Is it… (circle the probability)

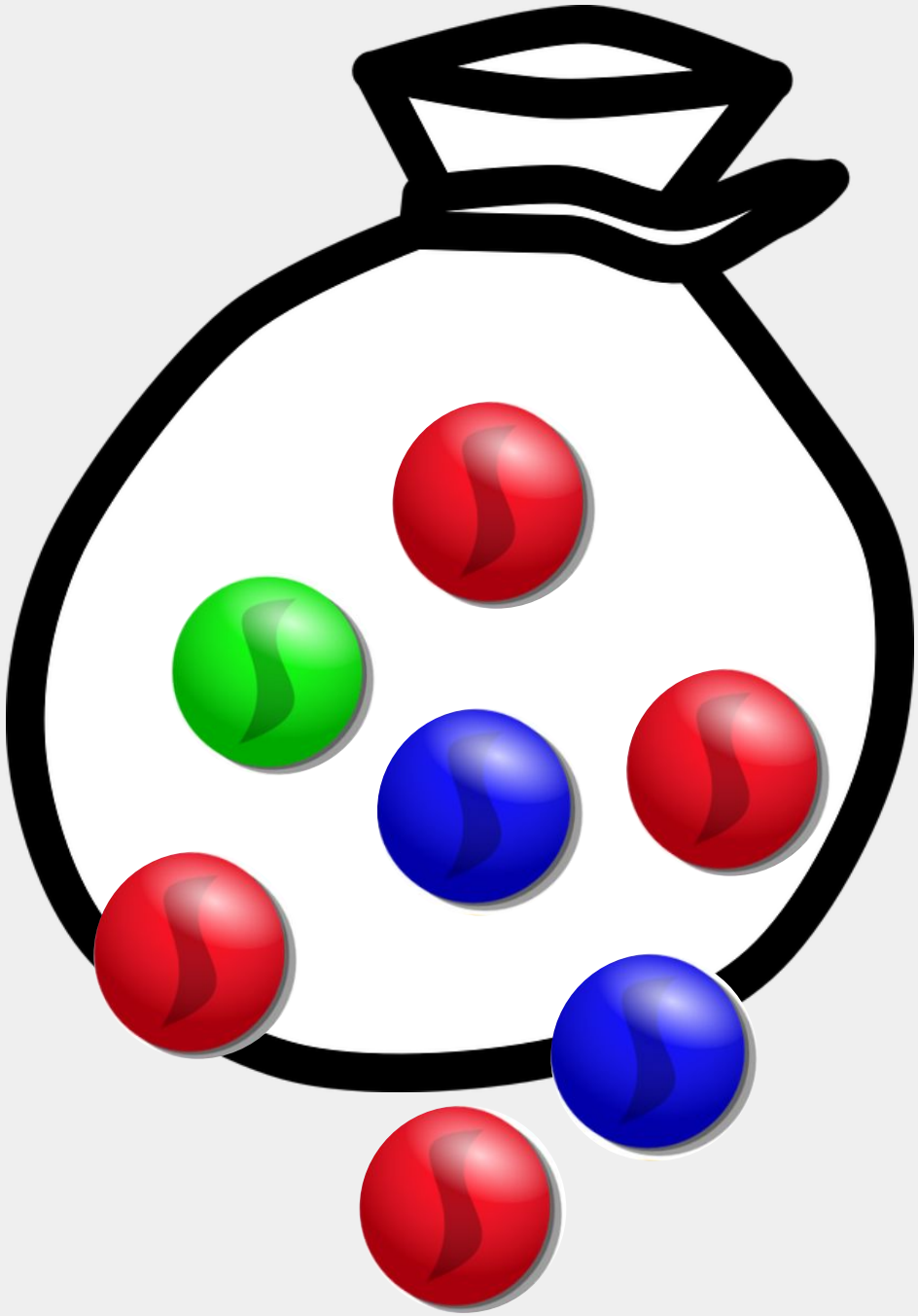
Certain **Likely** **Equally Likely**

Unlikely **Impossible**

3.

What is the probability that you will pull out a yellow marble?





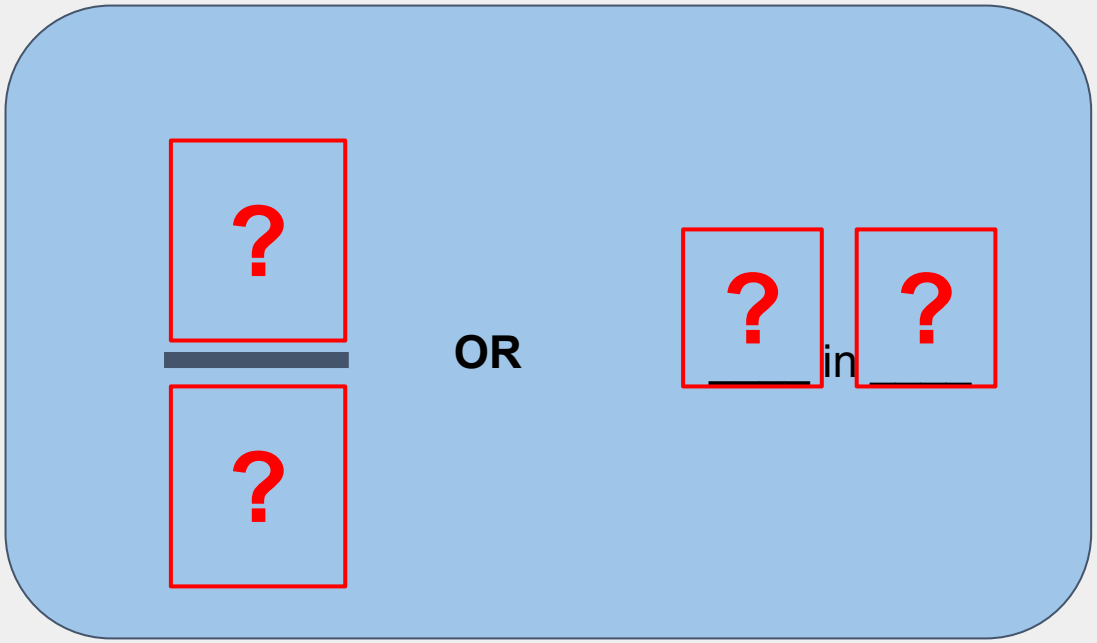
Is it… (circle the probability)

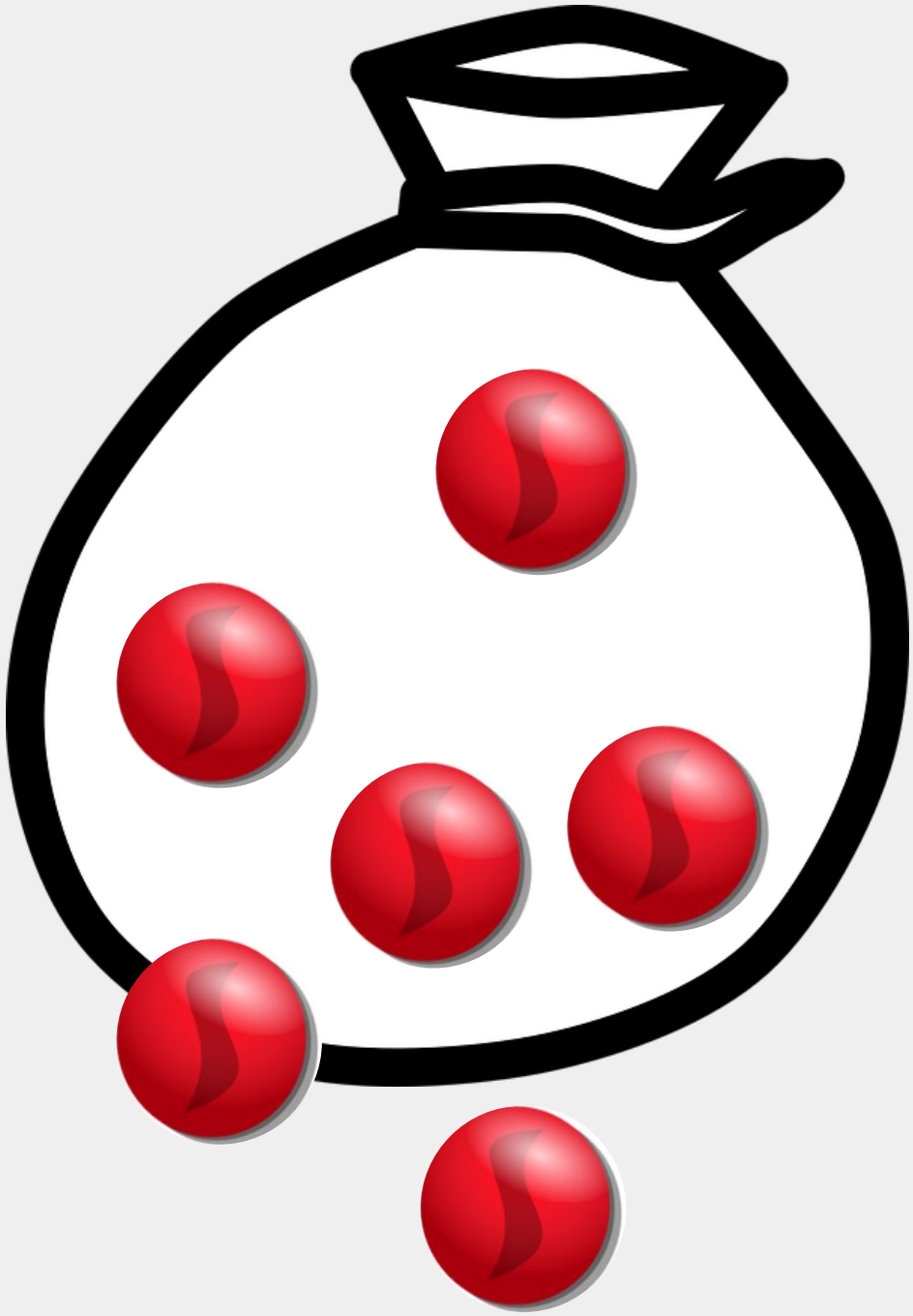
Certain Likely Likely Equally Likely

Unlikely Impossible

4.

What is the probability that you will pull out a **red** marble?





Is it… (circle the probability)

Certain **Likely** **Equally Likely**

Unlikely **Impossible**

5.

Make it certain to pull out a **blue** marble.

$\frac{?}{?}$ OR ? ___ in ? ___

6.

Make it impossible to pull out a green marble.

$\frac{?}{?}$ OR ? ___ in ? ___

7.

Make it likely to pull out a **red** marble.

$\frac{?}{?}$ OR ? in ?

8.

Directions: Drag the fraction to the correct place on the number line. Then drag the marbles into the bag to match the fraction.

Red

$\frac{2}{8}$

Is it… (circle the probability)

Certain Likely Likely Equally Likely

Unlikely Impossible

9. Directions: Drag the fraction to the correct place on the number line. Then drag the marbles into the bag to match the fraction.

Blue

Is it… (circle the probability)

Certain Likely Likely Equally Likely

Unlikely Impossible

$\frac{0}{4}$

10. Directions: Drag the fraction to the correct place on the number line. Then drag the marbles into the bag to match the fraction.

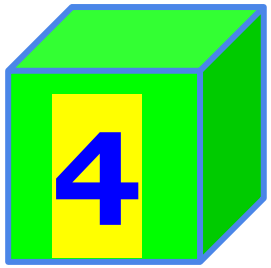
Green

$\frac{3}{4}$

Is it… (circle the probability)

Certain Likely Likely Equally Likely

Unlikely Impossible

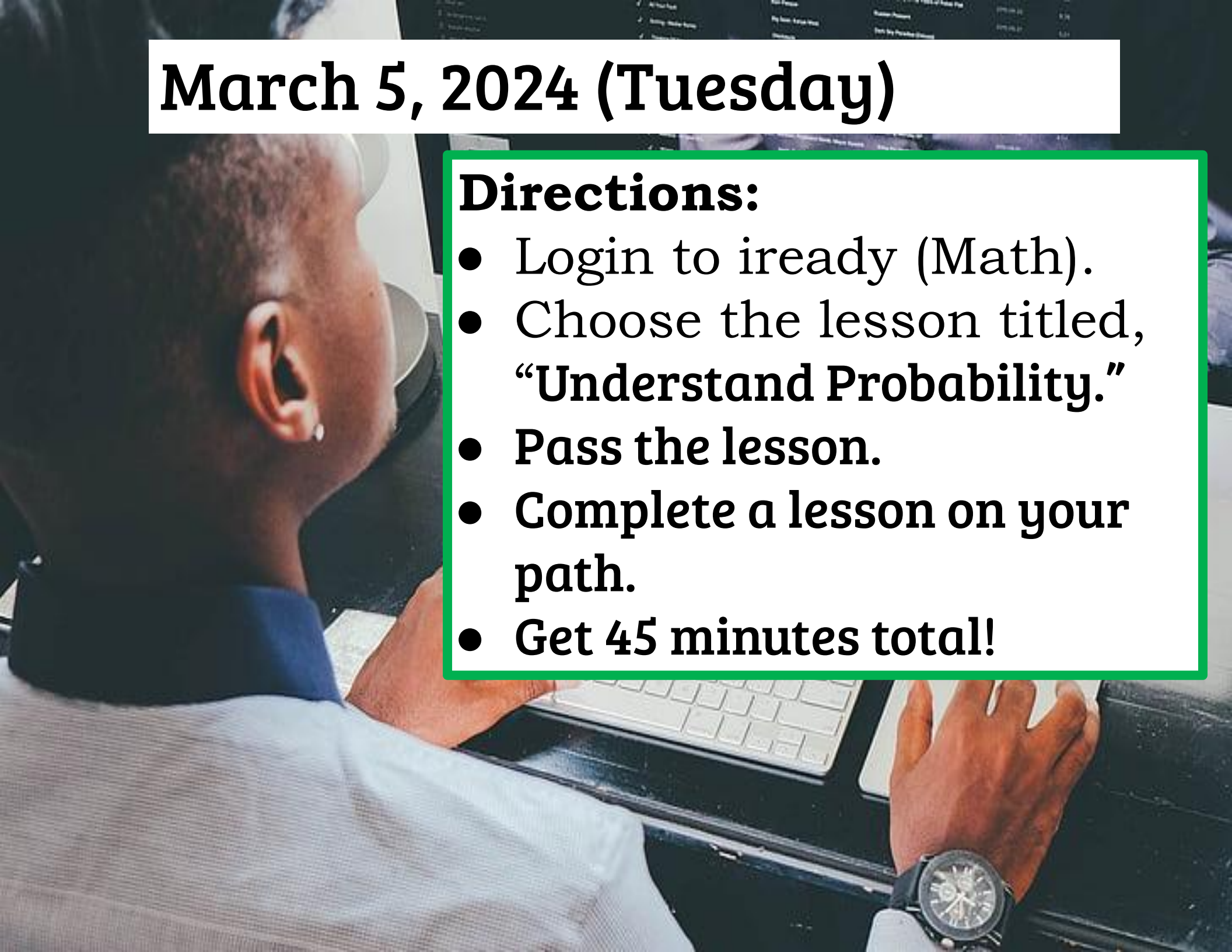


Closure

Complete!

A stack of cards are numbered from 1 through 50. If a student selects a card, what is the probability that the student will select a card that has both the same number in the ones place and the tens place? Write the answer as a decimal.

Write the answer in the box.



March 5, 2024 (Tuesday)

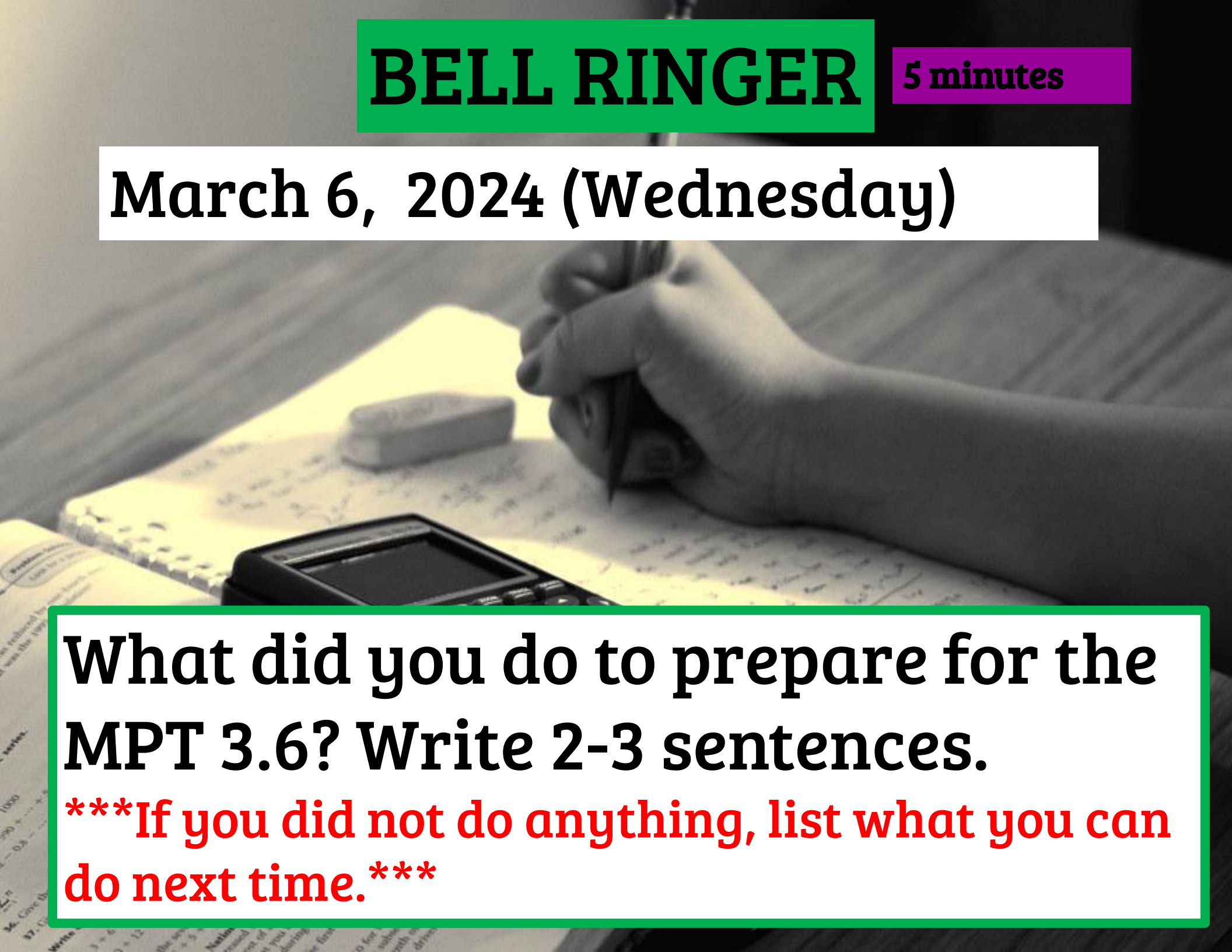
Directions:

- Login to iready (Math).
- Choose the lesson titled, "**Understand Probability.**"
- **Pass the lesson.**
- **Complete a lesson on your path.**
- **Get 45 minutes total!**

BELL RINGER

5 minutes

March 6, 2024 (Wednesday)



What did you do to prepare for the MPT 3.6? Write 2-3 sentences.

If you did not do anything, list what you can do next time.

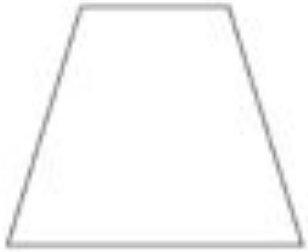
Review MPT 3.6

1) A company manufactures cell phones. In August, a random sample of 125 cell phones was inspected, and 3 phones were found to be defective. The company manufactured 8,000 cell phones in August. Based on the results from the sample, about how many cell phones are expected to be defective? (7.SP.2)

A) 64 cell phones
B) 192 cell phones
C) 2,667 cell phones
D) 3360 cell phones

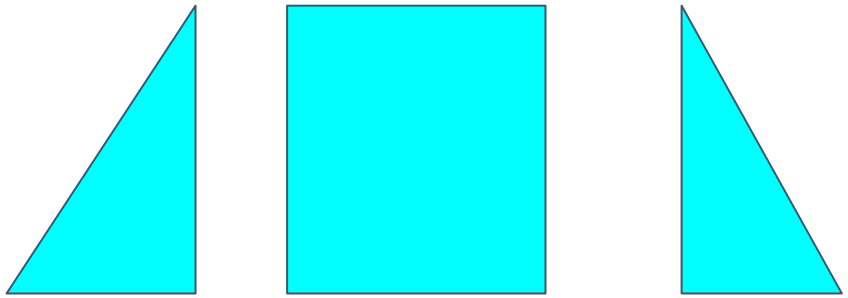
$$\frac{\text{Part}}{\text{Whole}} = \frac{\text{defective}}{\text{whole}} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

2) Jessie is helping her grandmother plant a garden in the shape of the trapezoid shown. **(7.G.6)**



Area of a triangle = 0.5(base × height)

Area of a rectangle = base × height



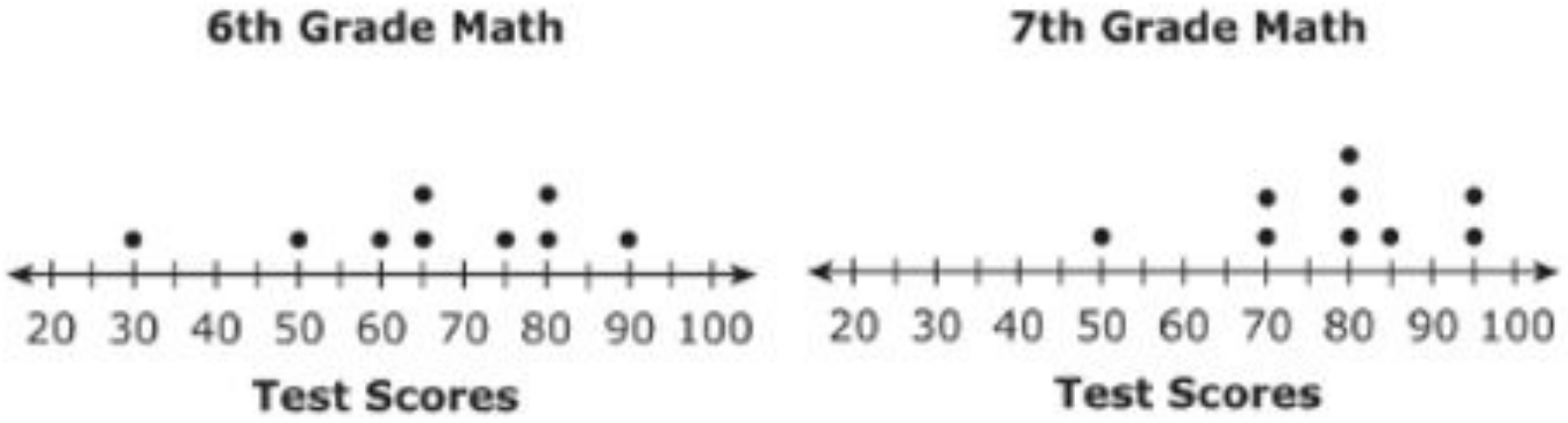
The garden will have the following dimensions:

- base one is 12.5 feet long
- base two is 0.5 times the length of base one
- height is 10 feet

What is the area, in square feet, of this garden?

A) 28.75 square feet
B) 93.75 square feet
C) 125.00 square feet
D) 187.50 square feet

3) The dot plots show students' math test scores from the 6th and 7th grades. **(7.SP.3)**



Which **two statements** about the data are true?

A) The range of test scores in 6th grade is greater than the range of test scores in 7th grade.
B) The range of test scores in 6th grade is less than the range of test scores in 7th grade.
C) The mean of test scores in 6th grade is greater than the mean of test scores in 7th grade.
D) The mean of test scores in 6th grade is less than the mean of test scores in 7th grade.
E) The median test scores in 6th grade and 7th grade are the same.

6th Grade: 30, 50, 60, 65, 65, 75, 80, 80, 90

7th Grade: 50, 70, 70, 80, 80, 80, 85, 95, 95

Mean: add & divide
Median: order, then middle
Mode: most
Range: difference between largest and smallest

4) What is the value of the expression? $-2(-\frac{7}{9} \div \frac{1}{3})$? **(7.NS.2)**

P
E
MD
AS

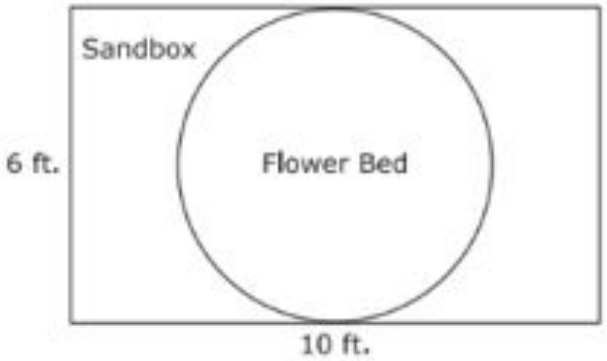
A) $-4\frac{2}{3}$

B) $-2\frac{7}{27}$

C) $1\frac{5}{9}$

D) $4\frac{2}{3}$

5) A school's art teacher designs a circular flower bed inside a rectangular sandbox. The sandbox is 6 feet wide and 10 feet long. (7.G.4)



Area of rectangle = base × height

Area of circle = 3.14 × radius × radius

How many square feet will there be for sand after the flower bed is installed? Use 3.14 for π. Round the answer to the nearest square foot.

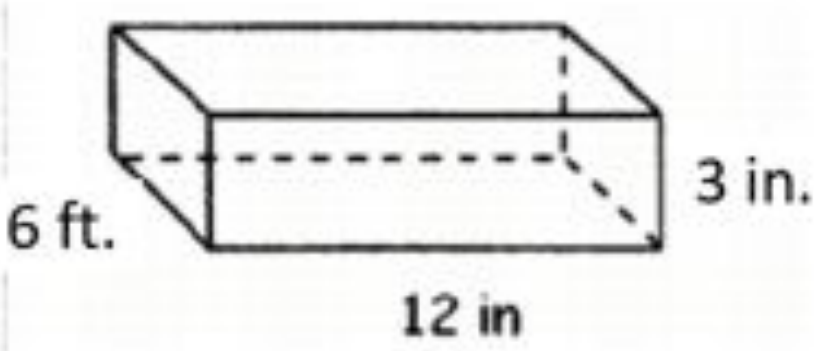
A) 22 square feet

B) 28 square feet

C) 32 square feet

D) 41 square feet

6) What is the surface area of the rectangular prism below? (7.G.6)



A) **108 in²**
B) **126 in²**
C) **216 in²**
D) **252 in²**

Find the area of all 6 rectangles, then add.

7) Kate conducts a survey at her middle school to determine the students' favorite sport. Which sampling method would best produce a representative sample of the population? (7.SP.1)

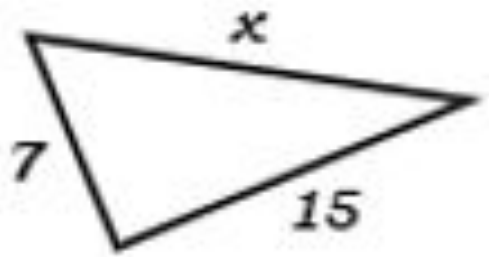
A) Kate surveys the football team.
B) Kate surveys seventh grade students.
C) Kate surveys every 4th student entering the school.
D) Kate surveys every 8th student from a roster of the choir members.

What is the population?

Does the sampling method give EVERYONE in the population a chance to be part of the sample?

Is the sampling method random?

8) Which could be NOT the value of x? (7.G.2)



A) 11
B) 15
C) 20
D) 23

$A + B > C$

$7 + 15 > x$

9) Charlie is a salesman at an appliance store and receives 7% commission for each appliance he sells. What is the price of a refrigerator if the commission he earned on selling it was $84? (7.RP.3)

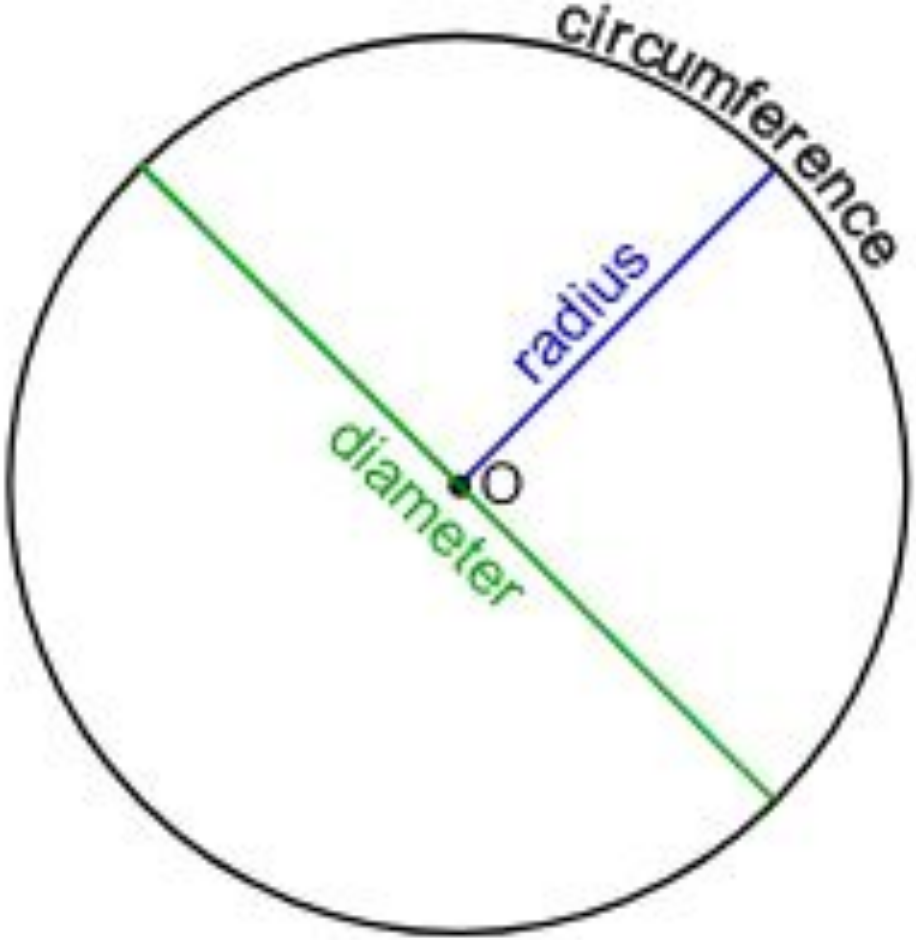
A) $91
B) $800
C) $1200
D) $1384

7% of *sales* = commission

$0.07s = 84$

10) A circle has a diameter of 53 inches. What is the radius? **(7.G.4)**

inches



BELL RINGER

March 7, 2024 (Thursday)

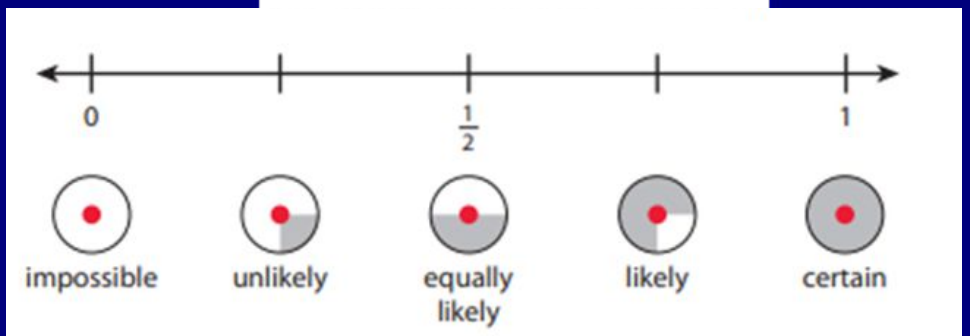
Which event is most likely to occur?

Ⓐ tossing a fair coin and landing on heads

Ⓑ spinning a 3 on a spinner divided into 4 equal sections numbered 1 through 4

Ⓒ picking a red marble from a bag of marbles that contains 3 blue, 4 red, and 2 green marbles

Ⓓ rolling a number cube that has sides numbered 1 through 6 and landing on a number less than 5



Independent Practice

To be announced based on MPT 3.6

The teacher will …

- **choose the RCC workbook lesson that correlates with the most missed standard.**

Page 685

LESSON 31

Solve Problems Involving Experimental Probability

Dear Family,

This week your student is learning about experimental probability.

Experimental probability is the probability of an event happening, based on results from an experiment. When you find an experimental probability, you compare the number of times a certain event occurs (favorable outcomes) to the total number of **trials** in the experiment.

$$\text{Experimental probability of an event} = \frac{\text{number of favorable outcomes}}{\text{number of trials}}$$

Suppose you toss a coin 10 times and the coin lands heads up 4 times. You can use this data to find the experimental probability of tossing a coin and the coin landing heads up. There are 10 trials and 4 favorable outcomes.

$$\text{Experimental probability of heads up} = \frac{4}{10} \text{ or } 0.4 \text{ or } 40\%$$

You can use the results from an experiment to predict how often an event will occur in the future.

Your student will be solving problems like the one below.

> Kamal and Zara are playing a game that uses a spinner with three sections. One section shows a sun, one shows a moon, and one shows a star. After spinning the spinner 60 times, it has landed on the moon section 18 times. Based on these results, predict how many times the spinner will land on the moon section after 300 spins.

➤ **ONE WAY** to make a prediction is to use an equation.

$$\frac{18}{60} = \frac{\text{number of moons}}{300}$$

$$300\left(\frac{18}{60}\right) = 300\left(\frac{\text{number of moons}}{300}\right)$$

$$90 = \text{number of moons}$$

➤ **ANOTHER WAY** is to use a fraction.

The spinner lands on the moon $\frac{18}{60}$ of the time.

$$\frac{18}{60} \cdot 300 = 90$$

Using either method, you can predict that the spinner will land on the moon section about 90 times out of 300 spins.

Use the next page to start a conversation about experimental probability.

Read page 685

Dear Family,

This week your student is learning about experimental probability.

Experimental probability is the probability of an event happening, based on results from an experiment. When you find an experimental probability, you compare the number of times a certain event occurs (favorable outcomes) to the total number of **trials** in the experiment.

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$$\text{Experimental probability of heads up} = \frac{4}{10} \text{ or } 0.4 \text{ or } 40\%$$

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Read page 685

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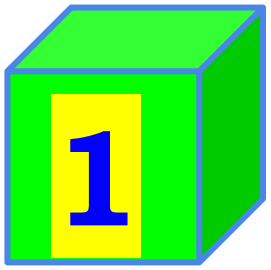


Complete the problem on 691. (Help on page 692)

Erin rolls a standard number cube and records the results.

Number Rolled	1	2	3	4	5	6
Frequency	|	|	||||		||	||

Based on these results, what is the probability of rolling each number?

Complete the problem on 691. (Help on page 692)

➤ **Explore different ways to find experimental probability.**

Erin rolls a standard number cube and records the results.

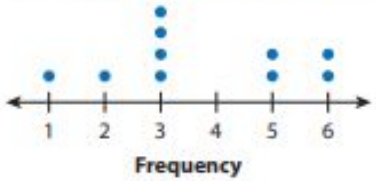
Number Rolled	1	2	3	4	5	6
Frequency	I	I	IIII		II	II

Based on these results, what is the probability of rolling each number?

Picture It

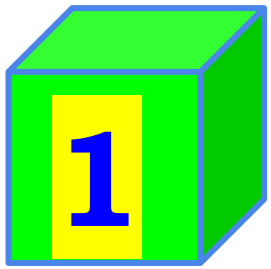
You can use a dot plot to display the results of an experiment.

Results of Rolling a Number Cube



Model It

You can write the experimental probability of each possible outcome in words.



Probability of rolling a 1 = $\frac{\text{number of 1s rolled}}{\text{number of trials}}$ =1/10 = 0.1

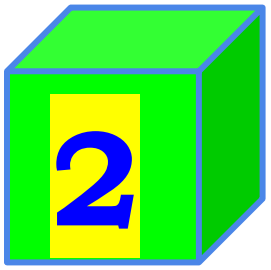
Probability of rolling a 2 = $\frac{\text{number of 2s rolled}}{\text{number of trials}}$

Probability of rolling a 3 = $\frac{\text{number of 3s rolled}}{\text{number of trials}}$

Probability of rolling a 4 = $\frac{\text{number of 4s rolled}}{\text{number of trials}}$

Probability of rolling a 5 = $\frac{\text{number of 5s rolled}}{\text{number of trials}}$

Probability of rolling a 6 = $\frac{\text{number of 6s rolled}}{\text{number of trials}}$

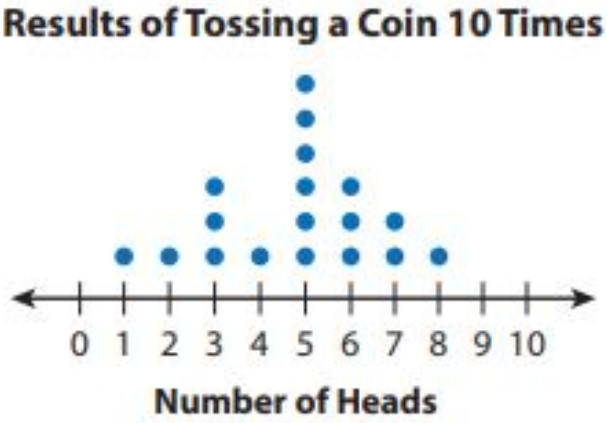


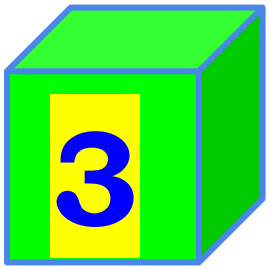
Complete page 694/Problems 7, 8, & 9

Apply It

Use what you learned to solve these problems.

7 In a class, 18 students each toss a coin 10 times. They record how many times the result is heads. Based on these results, what is the probability of getting more than 5 heads? Show your work.

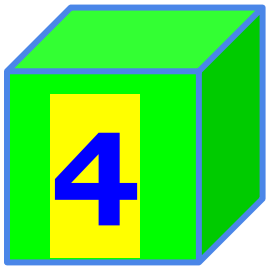




Complete page 694/Problems 7, 8, & 9

8 A grocery store prints coupons on randomly selected receipts. A coupon was printed on 18 of the last 1,200 receipts. Based on these results, what is the probability that a coupon will be printed on the next receipt? Show your work.

1,200 receipts, **18** coupons printed



Complete page 694/Problems 7, 8, & 9

9 Soledad has a spinner with a red, a blue, and a white section. She spins the spinner 20 times. Based on her results, what is the probability of the spinner landing on each color? Show your work.

Color	Red	Blue	White
Frequency	5	9	6

Closure

Complete!

A fair number cube, with numbers 1 through 6, was rolled 200 times. The number 5 was rolled 34 times. If the number cube was rolled 300 times, **approximately** how many times would the number 5 be rolled?

Ⓐ 9 times

Ⓑ 15 times

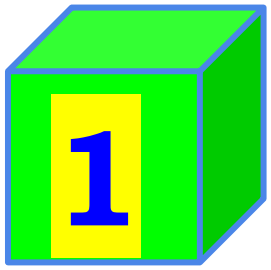
Ⓒ 51 times

Ⓓ 134 times

CLOSURE

Directions: List, link, learn.

1. **List** anything that still confuses you.
2. **Link** the practice problems to how this skill is used in everyday life.
3. Tell me what you **learned.**



Bell Ringer
March 8, 2024 (Friday)

Complete!

The following question has two parts. First, answer Part A. Then, answer Part B.

A number cube that has sides numbered 1 through 6 is rolled 180 times.

Part A

How many times would you expect the result to be an even number greater than 2?

Write the answer in the box.

[ ] times

Part B

How many times would you expect the result to be a number less than 6?

Write the answer in the box.

[ ] times

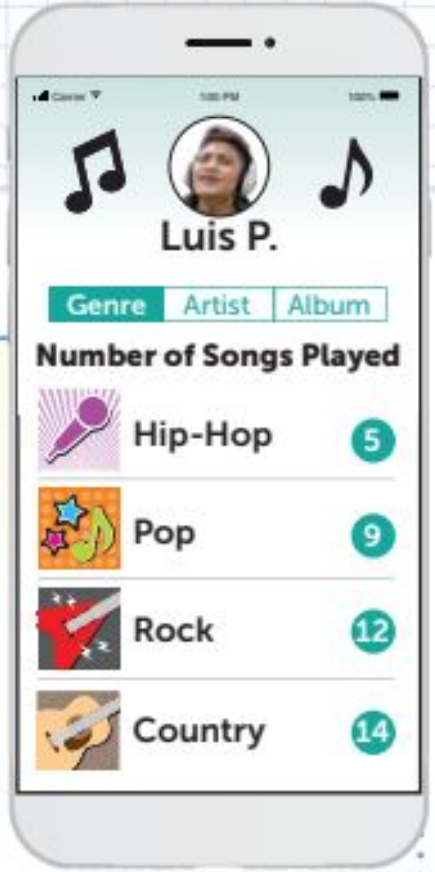
Complete page 697.
Help on page 698.

Develop Using Experimental Probability to Make Predictions

➤ **Read and try to solve the problem below.**

Luis sets his music app to play a certain playlist on shuffle. His app tracks the genre of each song played.

Luis plays the same playlist on shuffle again and this time plays 130 songs. Based on the previous results, predict the number of country songs that will play.



TRY IT

Math Toolkit grid paper, number lines, sticky notes

Complete page 697. Help on page 698.

➤ **Explore different ways to use experimental probability to make predictions.**

Luis sets his music app to play a certain playlist on shuffle. His app tracks the genre of each song played.

Genre	Hip-Hop	Pop	Rock	Country
Number of Songs Played	5	9	12	14

Luis plays the same playlist on shuffle again and this time plays 130 songs. Based on the previous results, predict the number of country songs that will play.

Model It

You can use the data to find the experimental probability.

There were $5 + 9 + 12 + 14$, or 40, songs played.

$$\text{Probability of a country song} = \frac{\text{number of country songs played}}{\text{number of trials}}$$

$$= \frac{14}{40}$$

Then use the experimental probability to predict future results.

About $\frac{14}{40}$ of the 130 songs should be country songs.

$\frac{14}{40} \cdot 130$

Model It

You can use an equation to make a prediction.

The experimental probability for 40 songs is $\frac{14}{40}$. You can use that to make a prediction for 130 songs.

c = number of country songs played in 130 trials

$\frac{14}{40} = \frac{c}{130}$

Look at the example on page 701.

Practice Using Experimental Probability to Make Predictions

➤ **Study the Example showing how to use experimental probability to make a prediction. Then solve problems 1–4.**

Example

A science class records the weather every day for 30 days. Based on their results, predict how many of the next 15 days will be rainy.

Weather	Sunny	Rainy	Cloudy Without Rain
Number of Days	13	9	8

Experimental probability of a rainy day: $\frac{\text{rainy days}}{\text{total days}} = \frac{9}{30}$

Probability of a rainy day · number of days = number of rainy days

$$\frac{9}{30} \cdot 15 = 4.5$$

You can predict that about 4 or 5 days in the next 15 days will be rainy.

Complete page 701/ Problems 1a & 1b.

1 A class rolls a number cube 100 times and records the results.

Number on Cube	1	2	3	4	5	6
Frequency	15	16	17	20	15	17

a. Use these results to predict about how many times the class will roll the number 4 in 1,000 trials. Show your work.

Experimental probability of an event $= \frac{\text{number of favorable outcomes}}{\text{number of trials}}$ **x 1000**

SOLUTION _____

b. Use these results to predict how many times an odd number will be rolled in 10,000 trials. Show your work.

Experimental probability of an event $= \frac{\text{number of favorable outcomes}}{\text{number of trials}}$ **x 10,000**

SOLUTION _____

Vocabulary

experimental probability
the probability of an event occurring based on the results from an experiment.

trial
a single performance of an experiment.

Complete page 702/ Problems 2 & 3.

2 Tiana spins a spinner several times. It stops on red 12 of those times. Based on this result, she predicts that if she spins the spinner 1,000 times, the spinner will stop on red 240 times. How many times did Tiana spin the spinner? Show your work.

Experimental probability of an event $= \frac{\text{number of favorable outcomes}}{\text{number of trials}}$

$$\frac{12}{x} = \frac{240}{1000}$$

Complete page 702/ Problems 2 & 3.

3 There is an upcoming election in Deyvi's town. Deyvi asks a random sample of voters whether they plan to vote for the current mayor, against the current mayor, or are undecided. His results are shown in the table. Use his results to predict how many people will be for, against, and undecided in a group of 2,000 voters. Show your work.

Vote	Number of Voters
For	25
Against	12
Undecided	3

$$\text{Experimental probability of an event} = \frac{\text{number of favorable outcomes}}{\text{number of trials}}$$

Read & Review.

Key Idea

Probability

The **probability** of an event is a number that measures the likelihood that the event will occur. Probabilities are between 0 and 1, including 0 and 1. The diagram relates likelihoods (above the diagram) and probabilities (below the diagram).

EXAMPLE 2 Finding a Probability

You roll the number cube. What is the probability of rolling an odd number?

$$P(\text{event}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$

$$P(\text{odd}) = \frac{3}{6}$$ ← There are 3 odd numbers (1, 3, and 5). ← There is a total of 6 numbers.

$$= \frac{1}{2}$$ Simplify.

∴ The probability of rolling an odd number is $\frac{1}{2}$, or 50%.

Which operation is used when calculating the probability?

Read & Review.

EXAMPLE 3 Using a Probability

The probability that you randomly draw a short straw from a group of 40 straws is $\frac{3}{20}$. How many are short straws?

Ⓐ 4 Ⓑ 6

Ⓒ 15 Ⓓ 34

$$P(\text{short}) = \frac{\text{number of short straws}}{\text{total number of straws}}$$

$$\frac{3}{20} = \frac{n}{40}$$ Substitute. Let n be the number of short straws.

$$6 = n$$ Solve for n.

There are 6 short straws.

So, the correct answer is Ⓑ.

7

Read & Review.

Key Idea

Experimental Probability

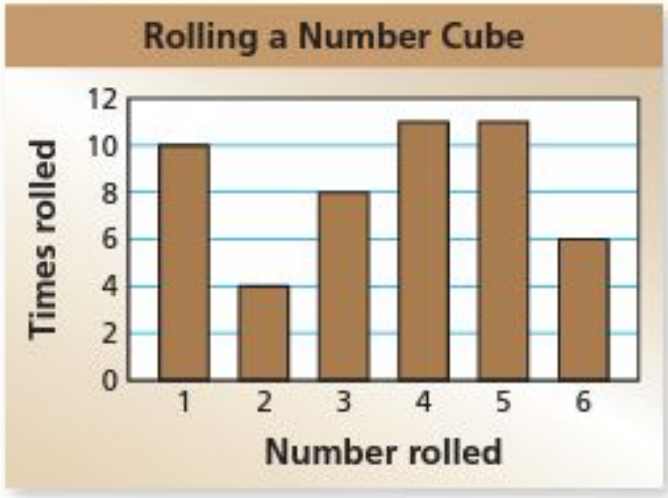
Probability that is based on repeated trials of an experiment is called **experimental probability**.

$$P(\text{event}) = \frac{\text{number of times the event occurs}}{\text{total number of trials}}$$

Describe how to find the experimental probability of an event.

Read & Review.

EXAMPLE 1 Finding an Experimental Probability



The bar graph shows the results of rolling a number cube 50 times. What is the experimental probability of rolling an odd number?

The bar graph shows 10 ones, 8 threes, and 11 fives. So, an odd number was rolled $10 + 8 + 11 = 29$ times in a total of 50 rolls.

$$P(\text{event}) = \frac{\text{number of times the event occurs}}{\text{total number of trials}}$$

$$P(\text{odd}) = \frac{29}{50}$$

← An odd number was rolled 29 times.

← There was a total of 50 rolls.

∴ The experimental probability is $\frac{29}{50}$, 0.58, or 58%.

Read & Review.

EXAMPLE 2 Making a Prediction

"April showers bring May flowers." Old Proverb, 1557

It rains 2 out of the last 12 days in March. If this trend continues, how many rainy days would you expect in April?

Find the experimental probability of a rainy day.

$$P(\text{event}) = \frac{\text{number of times the event occurs}}{\text{total number of trials}}$$

$$P(\text{rain}) = \frac{2}{12} = \frac{1}{6}$$

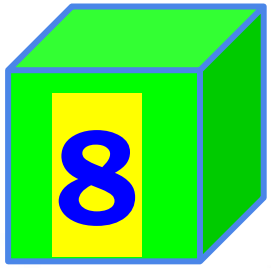
It rains 2 days.

There is a total of 12 days.

To make a prediction, multiply the probability of a rainy day by the number of days in April.

$$\frac{1}{6} \cdot 30 = 5$$

∴ So, you can predict that there will be 5 rainy days in April.



Key Idea

Theoretical Probability

When all possible outcomes are equally likely, the **theoretical probability** of an event is the ratio of the number of favorable outcomes to the number of possible outcomes.

$$P(\text{event}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$

How are theoretical probability and experimental probability different?

9

Read, Review, & Answer the Question.

EXAMPLE 3 Finding a Theoretical Probability

You randomly choose one of the letters shown. What is the theoretical probability of choosing a vowel?

$$P(\text{event}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$

$$P(\text{vowel}) = \frac{3}{7}$$

← There are 3 vowels.

← There is a total of 7 letters.

∴ The probability of choosing a vowel is $\frac{3}{7}$, or about 43%.

An event has a theoretical probability of 0.5. What does this mean?

Read, Review, & Answer the Question.

EXAMPLE 4 Using a Theoretical Probability

The theoretical probability of winning a bobblehead when spinning a prize wheel is $\frac{1}{6}$. The wheel has 3 bobblehead sections. How many sections are on the wheel?

$$P(\text{bobblehead}) = \frac{\text{number of bobblehead sections}}{\text{total number of sections}}$$

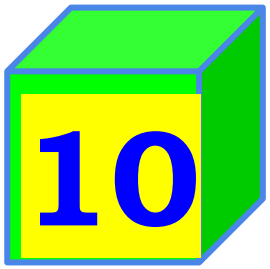
$\frac{1}{6} = \frac{3}{s}$ Substitute. Let s be the total number of sections.

$s = 18$ Cross Products Property

∴ So, there are 18 sections on the wheel.

Describe an event that has a theoretical probability of $\frac{1}{4}$.

Closure



Jamie spun a colored spinner 20 times. The results of her spins are shown in the frequency table.

Colored Spinner Frequency Table

Color	Frequency
Red	𝍸
Orange	|||
Yellow	||
Green	||||
Blue	||||
Purple	||

Based on the data in the table, how many times should Jamie expect the spinner to land on green if she spun the spinner 400 times?

Ⓐ 20 times

Ⓑ 67 times

Ⓒ 80 times

Ⓓ 100 times

CLOSURE

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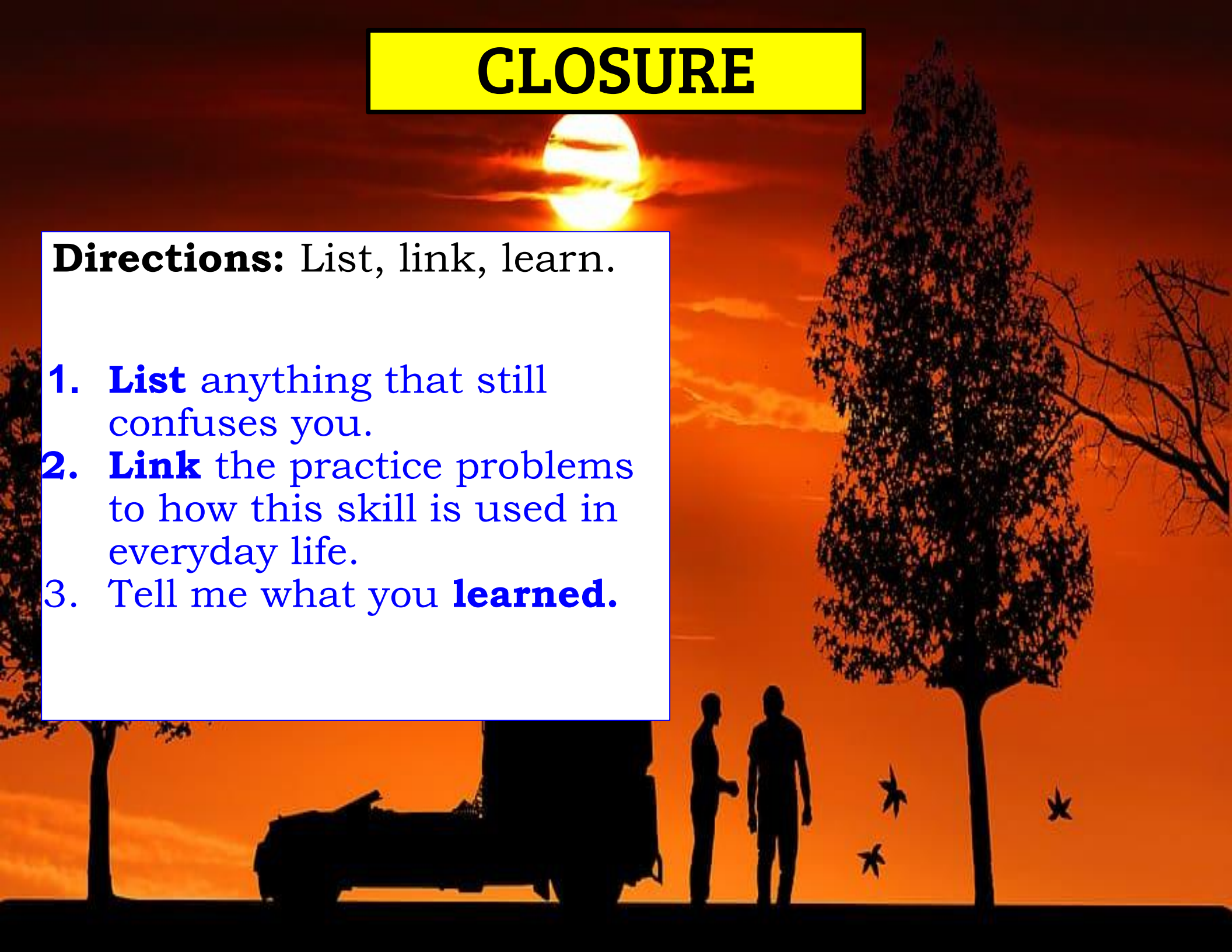

Remediation & Enrichment

	Monday	Wednesday	Thursday
B25	**Activity:** TTW pull individual students & ask guided questions about the assigned workbook pages for the day. (What is this problem about? What are you trying to find out? What information is important?) **Teacher:** *Ms. DeBlanc*	**Activity:** TTW pull individual students & ask guided questions about the assigned workbook pages for the day. (What is this problem about? What are you trying to find out? What information is important?) **Teacher:** *Ms. DeBlanc*	**Activity:** TTW pull individual students & ask guided questions about the assigned workbook pages for the day. (What is this problem about? What are you trying to find out? What information is important?) **Teacher:** *Mrs. Breazeale*
Bubbles	**Activity:** TTW pull individual students frequently scoring below 50% on MPTS. Ask guided questions about the assigned workbook pages for the day. (What is this problem about? What are you trying to find out? What information is important?) **Teacher:** *Mrs. Breazeale* & *Ms. DeBlanc*	**Activity:** TTW pull individual students frequently scoring below 50% on MPTS. Ask guided questions about the assigned workbook pages for the day. (What is this problem about? What are you trying to find out? What information is important?) **Teacher:** *Mrs. Breazeale* & *Ms. DeBlanc*	**Activity:** TTW pull individual students frequently scoring below 50% on MPTS. Ask guided questions about the assigned workbook pages for the day. (What is this problem about? What are you trying to find out? What information is important?) **Teacher:** *Mrs. Breazeale*
T25	**Activity:** While the teacher is pulling individual students frequently scoring below 50% on MPTs, use them to explain concepts in a different way when needed. **Teacher:** *Mrs. Breazeale*	**Activity:** While the teacher is pulling individual students frequently scoring below 50% on MPTs, use them to explain concepts in a different way when needed. **Teacher:** *Mrs. Breazeale*	**Activity:** While the teacher is pulling individual students frequently scoring below 50% on MPTs, use them to explain concepts in a different way when needed. **Teacher:** *Mrs. Breazeale*

MPT 3.6 Student Results

	1st Period	3rd Period	4th Period	5th Period	7th Period
Rubies 0 - 40%					
Amethyst 41 -60%					
Emeralds 61-70%					
Sapphires 71-100%					