

Objectives

- Identify the fraction that names part of a set
- Identify the numerator and the denominator of a fraction
- Write the fraction that names part of a set
- Predict the results of a probability activity
- Record data for a probability activity, using tallies

Teacher Materials

- Chart 10: *Part of a Set*
- Division flashcards: 6 as a divisor, and previously reviewed division facts
- 3 pens
- 5 pencils
- 2 small buttons
- 1 large button
- 4 pennies
- 2 nickels

Student Materials

- Shapes Kit: 5 red circles and 5 green circles
- Number Cards: 0–9

Practice and Review

Expanded form

Choose students to tell the value of each digit as you guide the students in writing these numbers in expanded form.

$$3,472 \quad 3000 + 400 + 70 + 2$$

$$15,435 \quad 10,000 + 5,000 + 400 + 30 + 5$$

$$67,243,108 \quad 60,000,000 + 7,000,000 + 200,000 + 40,000 + 3,000 + 100 + 8$$

$$965,510 \quad 900,000 + 60,000 + 5,000 + 500 + 10$$

Division facts: 6 as a divisor

Introduce the Lesson

Divers searching for treasure on sunken ships hope to find chests filled with gold and silver, jewels, pearls, and other valuable items.

In Proverbs 16:16, God tells us that wisdom is better than gold and that we should choose understanding rather than silver. A Christian should live his life with the realization that wisdom and understanding are more valuable than any riches.

Teach for Understanding

Identify the fraction that names part of a set
Identify the numerator and the denominator

1. Display the *Part of a Set* chart. Explain that the fraction in each section of the chart is red to show that it identifies or represents the part of the set of shapes that is red.
2. Read aloud together the first fraction: *one half*. Explain that the denominator in a fraction identifies the equal parts in the whole set.
 - **What is the denominator in the fraction $\frac{1}{2}$? 2** **What does the denominator tell you?** *There are 2 shapes in the whole set.*

3. Remind the students that the numerator identifies the number of parts selected and that you are selecting the red shapes.
 - **What is the numerator in the fraction $\frac{1}{2}$? 1** **What does it tell you?** *1 of the shapes is red.*
4. Direct attention to the set of 3 shapes.
 - **How many shapes are in this set?** *3*
 - **How many of the 3 shapes are red?** *2*
 - **What fraction tells you that 2 of the 3 shapes are red?** $\frac{2}{3}$
 - **Why is the denominator 3?** *There are 3 shapes in the whole set.*
 - **Why is the numerator 2?** *2 of the shapes are red.*
5. Call attention to the set of 4 shapes.
 - **What fraction identifies the red shapes in this set?** $\frac{3}{4}$
 - **What does the fraction $\frac{3}{4}$ tell you about this set?** *3 of the 4 shapes are red.*
6. Follow a similar procedure for the remaining sets.

Write the fraction that names part of a set

1. Display 3 pens and 5 pencils.
 - **What part of the fraction names the equal parts of the whole set?** *denominator*
 - **How many objects are in this set of writing tools?** *8*
 - **What denominator would you write to represent this set?** *Why? 8; there are 8 parts or writing tools in the set.*
2. Remind the students that a fraction is written with a horizontal line between the numerator and the denominator. Direct the students to first write the denominator 8 on paper and then draw a horizontal line above it.
3. Remind the students that the numerator represents the number of parts selected.
 - **What numerator would you write to represent the number of pencils in this set? Why?** *5; there are 5 pencils.*
 Direct each student to write a 5 above the denominator; then read the fraction together: *five-eighths*.
 - **What fraction represents the part of this set of writing tools that is pencils? Why?** $\frac{5}{8}$; *5 of the 8 writing tools are pencils.*
 - **How many of the writing tools are pens?** *3*
4. Instruct each student to write the fraction that represents the part of the set that is pens.
 - **What fraction did you write? Why?** $\frac{3}{8}$; *3 of the 8 writing tools are pens.*
 Choose a student to write the fraction for display.
5. Repeat the procedure using the set of buttons (2 small and 1 large) and the set of coins (4 pennies and 2 nickels).
 - $\frac{2}{3}$ *small, $\frac{1}{3}$ large; $\frac{4}{6}$ pennies, $\frac{2}{6}$ nickels*

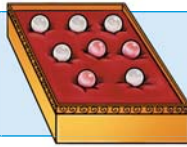
Predict the results of a probability activity

1. Write *Red* for display, and then write *Green* below the word *Red*. Direct the students to do the same on paper, writing *Red* on one line and *Green* on the next line. Explain that they are making a tally sheet.
2. Distribute the circles from the Shapes Kit. Instruct the students to arrange the 1 set of circles so that the red circles are together and the green circles are together.
 - **How many circles do you have altogether?** *10*
 - **How many red circles do you have?** *5*
 - **If all the circles were placed so that the colored side was facing down, what do you think is the probability, or the likelihood, that you will turn over a red circle?** *Elicit 5 chances out of 10.*
 Write *5 out of 10* beside the word *Red*.

Part of a Set

Name _____

The box has 8 pearls. The jeweler will use the 3 pink pearls in a piece of jewelry he is making. Three-eighths of the pearls will be taken from the box.

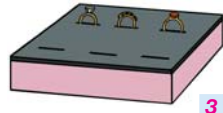


$\frac{3}{8}$ of the pearls will be used.

Write the fraction for the set.

There are 10 pearls.

The jewelry box holds 6 rings.



1. fraction of pearls in the box $\frac{6}{10}$

3. fraction of rings in the box $\frac{3}{6}$

2. fraction of pearls outside the box $\frac{4}{10}$

4. fraction of empty spaces in the ring box $\frac{3}{6}$

5. What fraction of the gems is green?



$\frac{3}{7}$

6. What fraction of the rubies is round?



$\frac{3}{5}$

7. What fraction of the pearls is pink?



$\frac{5}{9}$

Write the fraction that tells what part of the set is colored.

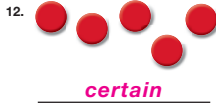


$\frac{7}{10}$



$\frac{2}{3}$

Write *certain*, *equally likely*, or *impossible* to predict the probability of choosing a red counter.



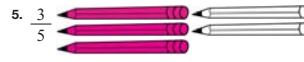
Math 4 Worktext, Chapter 3, Lesson 28

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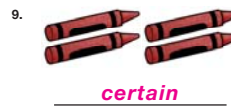
Write the fraction that tells what part of the set is pencils.



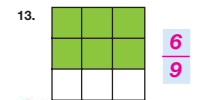
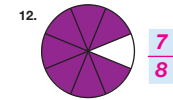
Color the pencils to show the fraction of a set.



Write *certain*, *equally likely*, or *impossible* to predict the probability of choosing a red crayon.



Write the fraction that tells what part is colored.

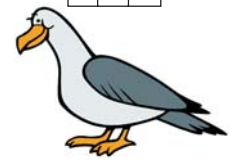


Write the missing numerator.

14. $\frac{8}{8} = 1$

15. $\frac{5}{5} = 1$

16. $\frac{3}{3} = 1$



Complete **Daily Review** on page 83.

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Math 4 Worktext, Chapter 3, Lesson 28

- ▶ What fraction could you write to represent the likelihood of turning over a red circle? $\frac{5}{10}$
Write $\frac{5}{10}$ beside 5 out of 10.
- ▶ What do you think is the probability that you will choose a green circle? *Elicit 5 out of 10 or $\frac{5}{10}$.*
Write 5 out of 10 and $\frac{5}{10}$ beside the word *Green*.
- ▶ What do you notice about the probability of choosing a red circle and the probability of choosing a green circle? *They are the same.*
- 3. Write for display the words *impossible*, *equally likely*, and *certain*. Explain that since there is the same number of red circles as green circles, you can predict that it is *equally likely* that a red circle or a green circle will be chosen.
- ▶ What prediction can you make about choosing a yellow circle? Why? *It is impossible; there are no yellow circles.*
- ▶ Is it possible to choose a red counter each time? *yes* Is it likely? Why? *No; elicit that it is equally likely that you will choose a green circle.*
- ▶ Can you be *certain* that you will choose a red circle? Why? *No; it is possible to choose a green circle.*
- ▶ What would need to be true in order for you to be *certain* of choosing a red circle each time? *Answers will vary, but elicit that all of the circles would need to be red.*

Record data for a probability activity

1. Instruct each student to place all of the circles on his desk with the colored side facing down, and then mix the circles together so that he does not know which circles are red and which are green.
2. Direct each student to turn over 1 circle. Instruct him to record the result by drawing a tally beside the appropriate

- color word on his tally sheet. Tell each student to return the circle to the set, colored side down, and to mix them well.
3. Instruct the students to repeat the procedure 19 more times. Remind them that every fifth tally should be a diagonal line across the previous 4 tallies. Give guidance as needed.
 4. Choose students to share their results. Lead a discussion about the results and compare them to the predictions. (*Note:* While it is possible for students to choose all red or all green circles, it is *less likely*. The results will *more likely* be nearly equal numbers of tallies for each color. *More likely* and *less likely* will be discussed in Lesson 29.)

Worktext pages 69–70, 83 (b)