EUREKA MATH

A STORY OF UNITS

Mathematics Curriculum

Grade 3 • MODULE 5

Fractions as Numbers on the Number Line

PROBLEM SETS

Video tutorials: http://embarc.online

Version 3

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GRADE 3 • MODULE 5

Fractions as Numbers on the Number Line

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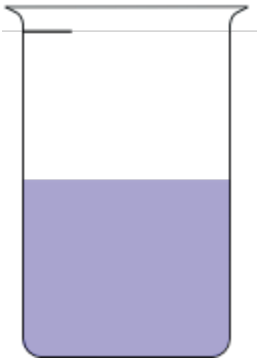
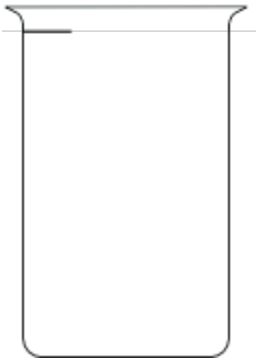
Name _____ Date _____

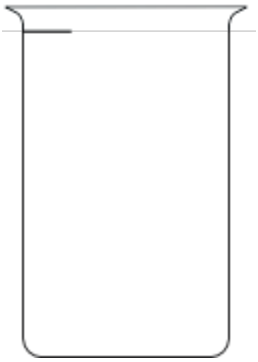
1. A beaker is considered full when the liquid reaches the fill line shown near the top. Estimate the amount of water in the beaker by shading the drawing as indicated. The first one is done for you.



1 half



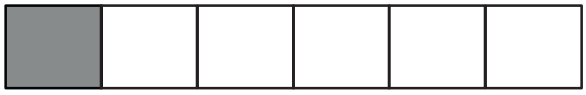
1 fourth



1 third

2. Juanita cut her string cheese into equal pieces as shown in the rectangles below. In the blanks below, name the fraction of the string cheese represented by the shaded part.

_____



_____

_____

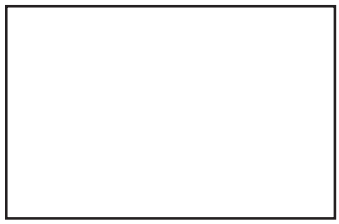
3. a. In the space below, draw a small rectangle. Estimate to split it into 2 equal parts. How many lines did you draw to make 2 equal parts? What is the name of each fractional unit?

   b. Draw another small rectangle. Estimate to split it into 3 equal parts. How many lines did you draw to make 3 equal parts? What is the name of each fractional unit?

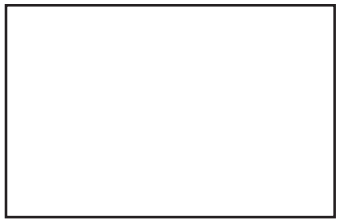
   c. Draw another small rectangle. Estimate to split it into 4 equal parts. How many lines did you draw to make 4 equal parts? What is the name of each fractional unit?

4. Each rectangle represents 1 sheet of paper.

   a. Estimate to show how you would cut the paper into fractional units as indicated below.



sevenths



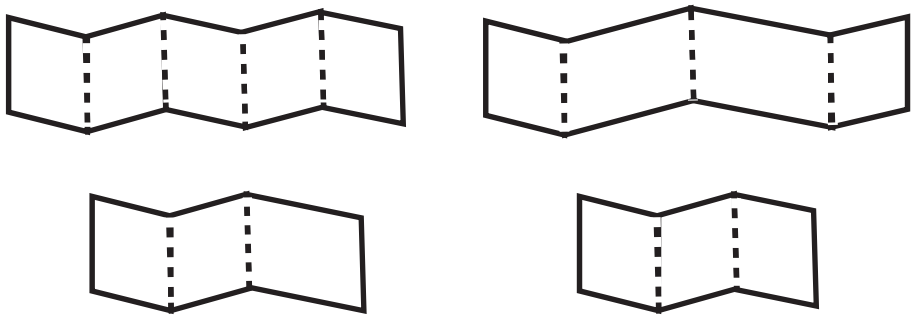
ninths

   b. What do you notice? How many lines do you think you would draw to make a rectangle with 20 equal parts?

5. Rochelle has a strip of wood 12 inches long. She cuts it into pieces that are each 6 inches in length. What fraction of the wood is one piece? Use your strip from the lesson to help you. Draw a picture to show the piece of wood and how Rochelle cut it.

Name _____ Date _____

1. Circle the strips that are folded to make equal parts.



2.

a. There are _____ equal parts in all. _____ are shaded.

b. There are _____ equal parts in all. _____ are shaded.

c. There are _____ equal parts in all. _____ are shaded.

d. There are _____ equal parts in all. _____ are shaded.

Use your fraction strips as tools to help you solve the following problems.

3. Noah, Pedro, and Sharon share a whole candy bar fairly. Which of your fraction strips shows how they each get an equal part? Draw the candy bar below. Then, label Sharon's fraction of the candy bar.

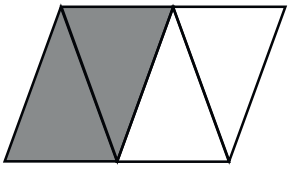
4. To make a garage for his toy truck, Zeno bends a rectangular piece of cardboard in half. He then bends each half in half again. Which of your fraction strips best matches this story?

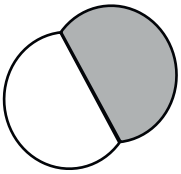
   a. What fraction of the original cardboard is each part? Draw and label the matching fraction strip below.

   b. Zeno bends a different piece of cardboard in thirds. He then bends each third in half again. Which of your fraction strips best matches this story? Draw and label the matching fraction strip in the space below.

Name _____ Date _____

1. Each shape is a whole divided into equal parts. Name the fractional unit, and then count and tell how many of those units are shaded. The first one is done for you.

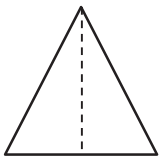
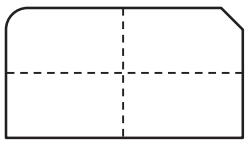
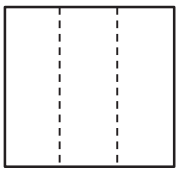
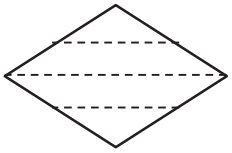
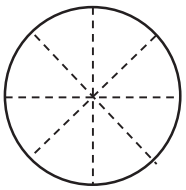


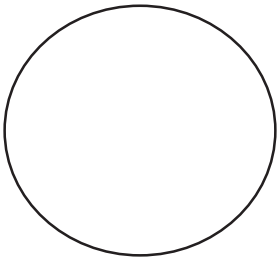
Fourths

2 fourths are shaded.

2. Circle the shapes that are divided into equal parts. Write a sentence telling what *equal parts* means.

3. Each shape is 1 whole. Estimate to divide each into 4 equal parts. Name the fractional unit below.

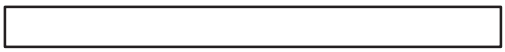


Fractional unit:_____

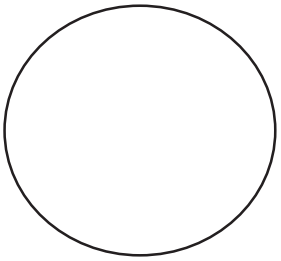
4. Each shape is 1 whole. Divide and shade to show the given fraction.

1 half

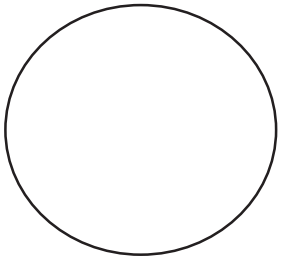
1 sixth



1 third



5. Each shape is 1 whole. Estimate to divide each into equal parts (do not draw fourths). Divide each whole using a different fractional unit. Write the name of the fractional unit on the line below the shape.



_____ _____ _____

6. Charlotte wants to equally share a candy bar with 4 friends. Draw Charlotte's candy bar. Show how she can divide her candy bar so everyone gets an equal share. What fraction of the candy bar does each person receive?

Each person receives _____.

Name _____ Date _____

1. Draw a picture of the yellow strip at 3 (or 4) different stations. Shade and label 1 fractional unit of each.

2. Draw a picture of the brown bar at 3 (or 4) different stations. Shade and label 1 fractional unit of each.

3. Draw a picture of the square at 3 (or 4) different stations. Shade and label 1 fractional unit of each.

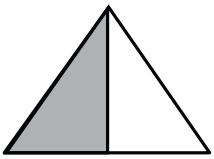
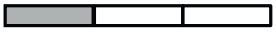
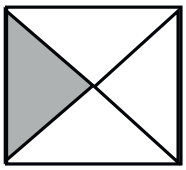
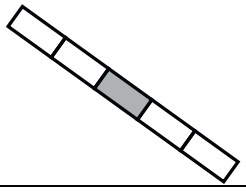
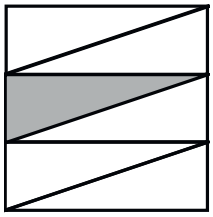
4. Draw a picture of the clay at 3 (or 4) different stations. Shade and label 1 fractional unit of each.

5. Draw a picture of the water at 3 (or 4) different stations. Shade and label 1 fractional unit of each.

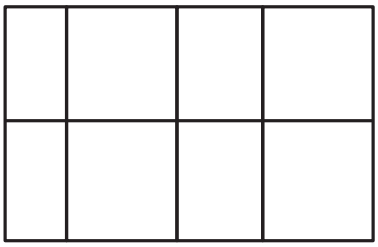
6. Extension: Draw a picture of the yarn at 3 (or 4) different stations.

Name _____ Date _____

1. Fill in the chart. Each image is one whole.

	Total Number of Equal Parts	Total Number of Equal Parts Shaded	Unit Form	Fraction Form
a. 				
b. 				
c. 				
d. 				
e. 				
f. 				

2. Andre's mom baked his 2 favorite cakes for his birthday party. The cakes were the exact same size. Andre cut his first cake into 8 pieces for him and his 7 friends. The picture below shows how he cut it. Did Andre cut the cake into eighths? Explain your answer.



3. Two of Andre's friends came late to his party. They decide they will all share the second cake. Show how Andre can slice the second cake so that he and his nine friends can each get an equal amount with none leftover. What fraction of the second cake will they each receive?

4. Andre thinks it's strange that $\frac{1}{10}$ of the cake would be less than $\frac{1}{8}$ of the cake since ten is bigger than eight. To explain to Andre, draw 2 identical rectangles to represent the cakes. Show 1 tenth shaded on one and 1 eighth shaded on the other. Label the unit fractions and explain to him which slice is bigger.

Name _____ Date _____

1. Complete the number sentence. Estimate to partition each strip equally, write the unit fraction inside each unit, and shade the answer.

   Sample:

   2 thirds = $\frac{2}{3}$

   a. 3 fourths =

   b. 3 sevenths =

   c. 4 fifths =

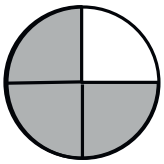
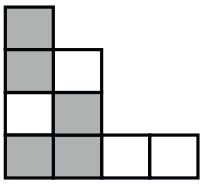
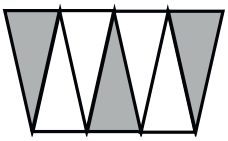
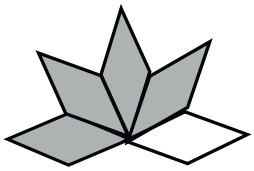
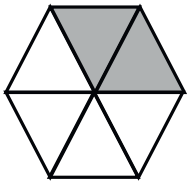
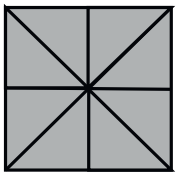
   d. 2 sixths =

2. Mr. Stevens bought 8 liters of soda for a party. His guests drank 1 liter.

   a. What fraction of the soda did his guests drink?

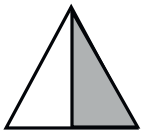
   b. What fraction of the soda was left?

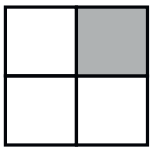
3. Fill in the chart.

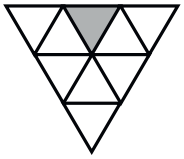
	Total Number of Equal Parts	Total Number of Shaded Equal Parts	Unit Fraction	Fraction Shaded
Sample: 	4	3	$\frac{1}{4}$	$\frac{3}{4}$
a. 				
b. 				
c. 				
d. 				
e. 				

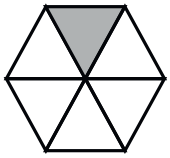
Name _____ Date _____

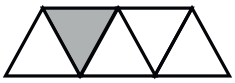
Whisper the fraction of the shape that is shaded. Then, match the shape to the amount that is not shaded.

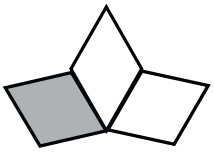
1. 

2. 

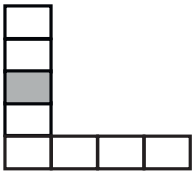
3. 

4. 

5. 

6. 

7. 

8. 

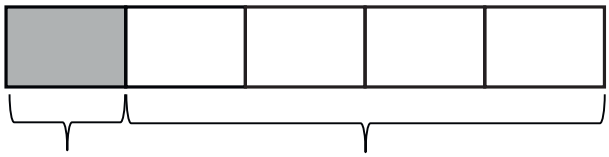
- 2 thirds
- 6 sevenths
- 4 fifths
- 8 ninths
- 1 half
- 5 sixths
- 7 eighths
- 3 fourths

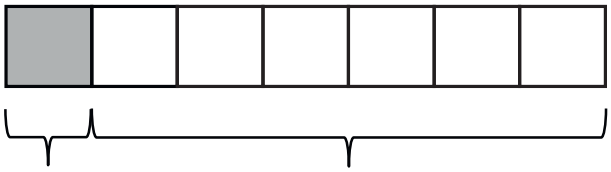
9. a. How many eighths are in 1 whole? _____

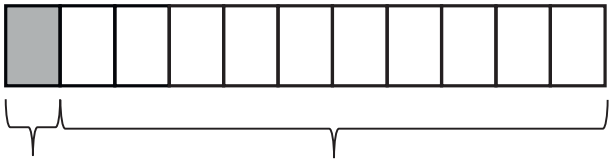
   b. How many ninths are in 1 whole? _____

   c. How many twelfths are in 1 whole? _____

10. Each strip represents 1 whole. Write a fraction to label the shaded and unshaded parts.





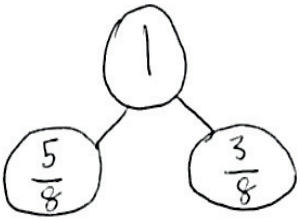


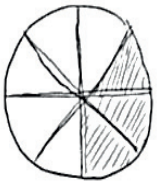
11. Avanti read 1 sixth of her book. What fraction of the book has she not read yet?

Name _____ Date _____

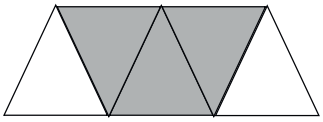
Show a number bond representing what is shaded and unshaded in each of the figures. Draw a different visual model that would be represented by the same number bond.

Sample:





1.



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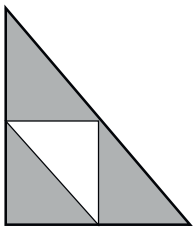
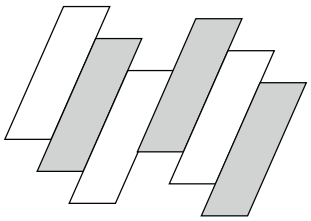
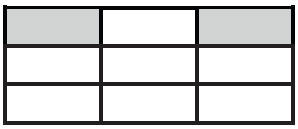


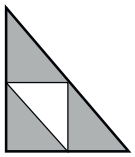
3.

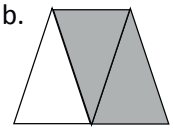


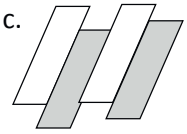
4.

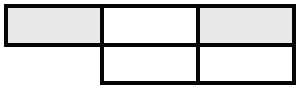


5. Draw a number bond with 2 parts showing the shaded and unshaded fractions of each figure. Decompose both parts of the number bond into unit fractions.

a. 

b. 

c. 

d. 

6. The chef put $\frac{1}{4}$ of the ground beef on the grill to make one hamburger and put the rest in the refrigerator. Draw a 2-part number bond showing the fraction of the ground beef on the grill and the fraction in the refrigerator. Draw a visual model of all the ground beef. Shade what is in the refrigerator.

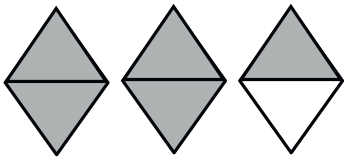
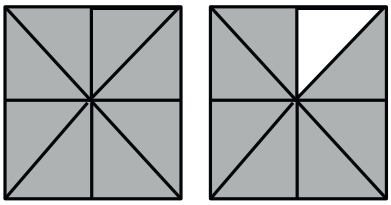
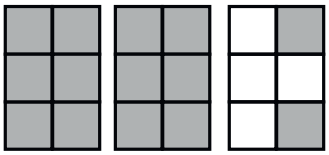
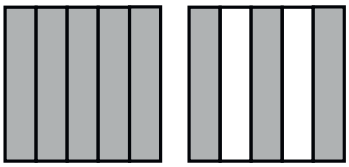
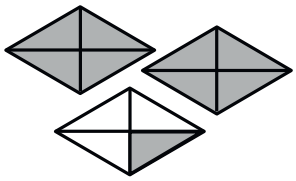
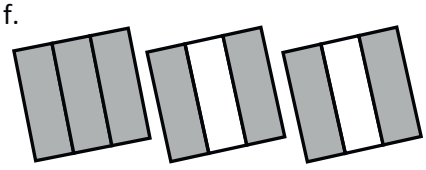
a. What fraction of the ground beef was in the refrigerator?

b. How many more hamburgers can the chef make if he makes them all the same size as the first one?

c. Show the refrigerated ground beef broken into unit fractions on your number bond above.

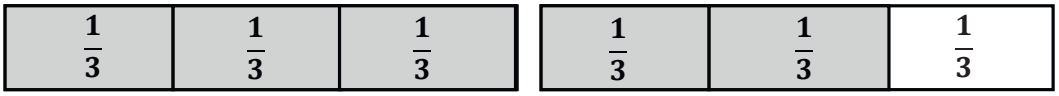
Name _____ Date _____

1. Each figure represents 1 whole. Fill in the chart.

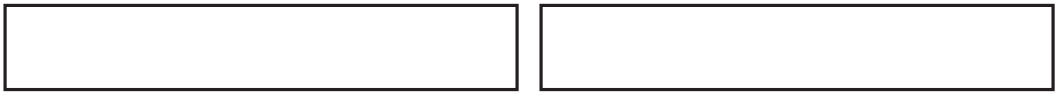
	Unit Fraction	Total Number of Units Shaded	Fraction Shaded
a. Sample: 	$\frac{1}{2}$	5	$\frac{5}{2}$
b. 			
c. 			
d. 			
e. 			
f. 			

2. Estimate to draw and shade units on the fraction strips. Solve.
   Sample:

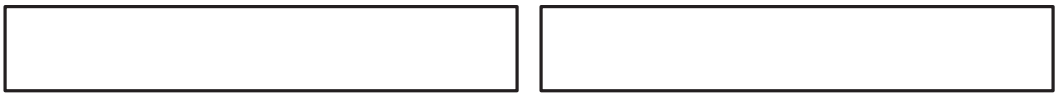
   5 thirds = $\frac{5}{3}$



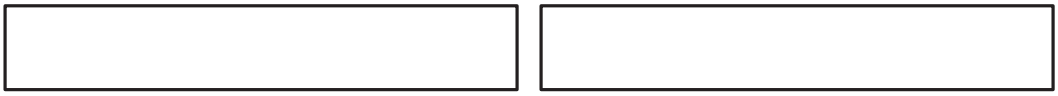
   a. 8 sixths =



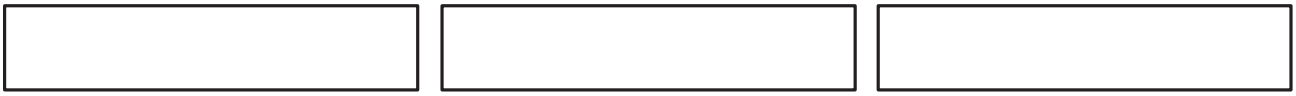
   b. 7 fourths =



   c. _____ $= \frac{6}{5}$



   d. _____ $= \frac{5}{2}$



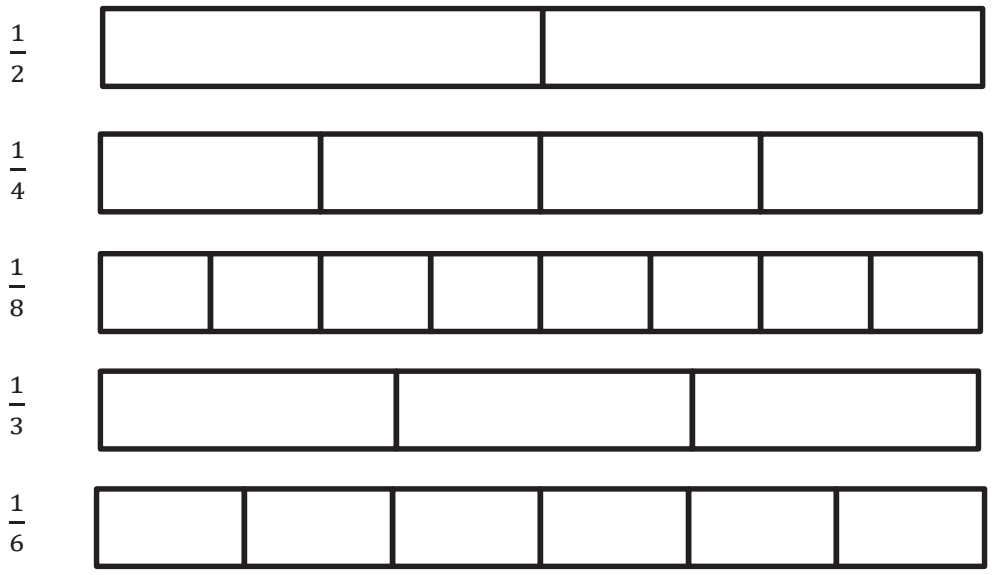
3. Mrs. Jawlik baked 2 pans of brownies. Draw the pans and estimate to partition each pan into 8 equal pieces.

   a. Mrs. Jawlik's children gobbled up 10 pieces. Shade the amount that was eaten.

   b. Write a fraction to show how many pans of brownies her children ate.

Name _____ Date _____

1. Each fraction strip is 1 whole. All the fraction strips are equal in length. Color 1 fractional unit in each strip. Then, answer the questions below.



2. Circle *less than* or *greater than*. Whisper the complete sentence.

a. $\frac{1}{2}$ is less than / greater than $\frac{1}{4}$

b. $\frac{1}{6}$ is less than / greater than $\frac{1}{2}$

c. $\frac{1}{3}$ is less than / greater than $\frac{1}{2}$

d. $\frac{1}{3}$ is less than / greater than $\frac{1}{6}$

e. $\frac{1}{8}$ is less than / greater than $\frac{1}{6}$

f. $\frac{1}{8}$ is less than / greater than $\frac{1}{4}$

g. $\frac{1}{2}$ is less than / greater than $\frac{1}{8}$

h. 9 eighths is less than / greater than 2 halves

3. Lily needs $\frac{1}{3}$ cup of oil and $\frac{1}{4}$ cup of water to make muffins. Will Lily use more oil or more water? Explain your answer using pictures, numbers, and words.

4. Use >, <, or = to compare.

a.	1 third	◯	1 fifth	b. 1 seventh	◯ 1 fourth
c.	1 sixth	◯	$\frac{1}{6}$	d. 1 tenth	◯ $\frac{1}{12}$
e.	$\frac{1}{16}$	◯	1 eleventh	f. 1 whole	◯ 2 halves

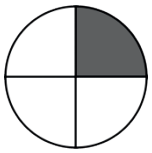
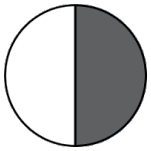
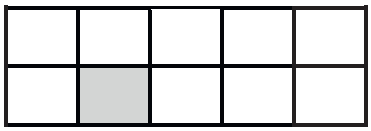
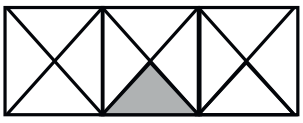
Extension:

g. $\frac{1}{8}$ ◯ 1 eighth ◯ $\frac{1}{6}$ ◯ $\frac{1}{3}$ ◯ 2 halves ◯ 1 whole

5. Your friend Eric says that $\frac{1}{6}$ is greater than $\frac{1}{5}$ because 6 is greater than 5. Is Eric correct? Use words and pictures to explain what happens to the size of a unit fraction when the number of parts gets larger.

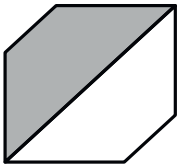
Name _____ Date _____

Label the unit fraction. In each blank, draw and label the same whole with a shaded unit fraction that makes the sentence true. There is more than 1 correct way to make the sentence true.

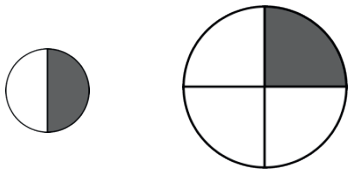
Sample: $\frac{1}{4}$ 	is less than	$\frac{1}{2}$ 
1. 	is greater than	
2. 	is less than	
3. 	is greater than	
4. 	is less than	

5.	is greater than	
6.	is less than	
7.	is greater than	

8. Fill in the blank with a fraction to make the statement true, and draw a matching model.

	
$\frac{1}{4}$ is less than ☐	$\frac{1}{2}$ is greater than ☐

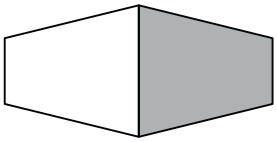
9. Robert ate $\frac{1}{2}$ of a small pizza. Elizabeth ate $\frac{1}{4}$ of a large pizza. Elizabeth says, "My piece was larger than yours, so that means $\frac{1}{4} > \frac{1}{2}$." Is Elizabeth correct? Explain your answer.



10. Manny and Daniel each ate $\frac{1}{2}$ of his candy, as shown below. Manny said he ate more candy than Daniel because his half is longer. Is he right? Explain your answer.

Manny's Candy Bar

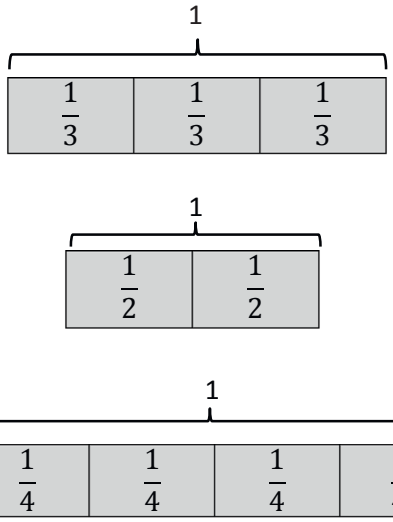
Daniel's Candy Bar

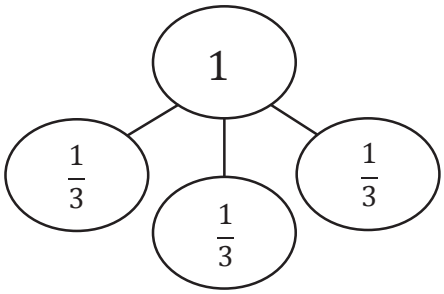


Name _____ Date _____

For each of the following:

- Draw a picture of the designated unit fraction copied to make at least two different wholes.
- Label the unit fractions.
- Label the whole as 1.
- Draw at least one number bond that matches a drawing.





1. Yellow strip

2. Brown strip

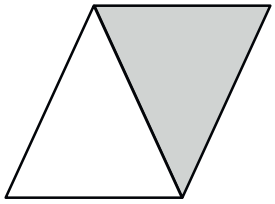
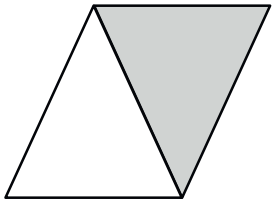
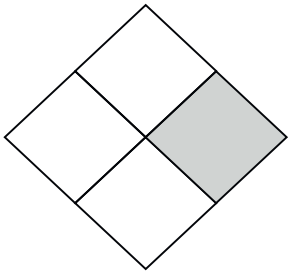
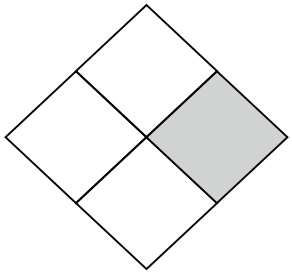
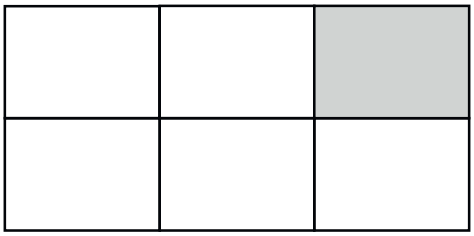
3. Orange square

4. Yarn

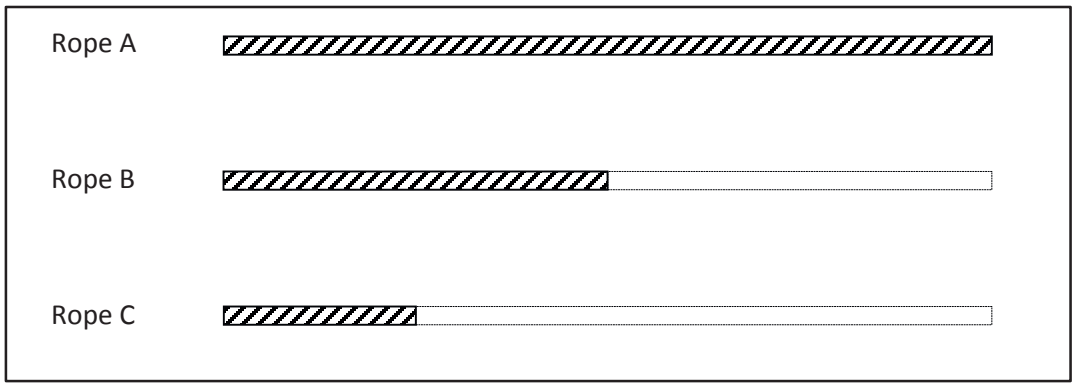
5. Water

6. Clay

Name _____ Date _____

The shape represents 1 whole. Write a unit fraction to describe the shaded part.	The shaded part represents 1 whole. Divide 1 whole to show the same unit fraction you wrote in Part (a).
1. a. 	b. 
2. a. 	b. 
3. a. 	b. 
4. a. 	b. 
5. a. 	b. 

6. Use the diagram below to complete the following statements.



a. Rope _____ is $\frac{1}{2}$ the length of Rope B.

b. Rope _____ is $\frac{1}{2}$ the length of Rope A.

c. Rope C is $\frac{1}{4}$ the length of Rope _____.

d. If Rope B measures 1 m long, then Rope A is _____ m long, and Rope C is _____ m long.

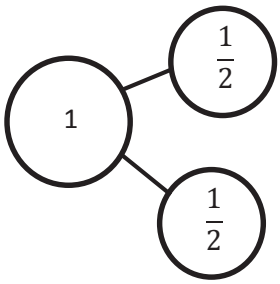
e. If Rope A measures 1 m long, Rope B is _____ m long, and Rope C is _____ m long.

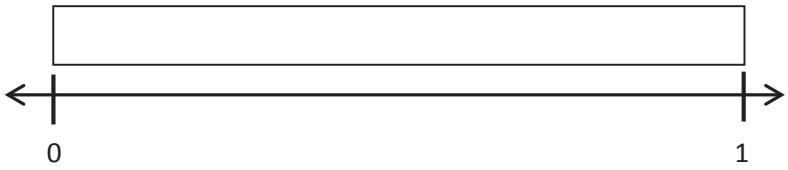
7. Ms. Fan drew the figure below on the board. She asked the class to name the shaded fraction. Charlie answered $\frac{3}{4}$. Janice answered $\frac{3}{2}$. Jenna thinks they're both right. With whom do you agree? Explain your thinking.

Name _____ Date _____

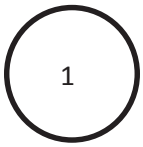
1. Draw a number bond for each fractional unit. Partition the fraction strip to show the unit fractions of the number bond. Use the fraction strip to help you label the fractions on the number line. Be sure to label the fractions at 0 and 1.

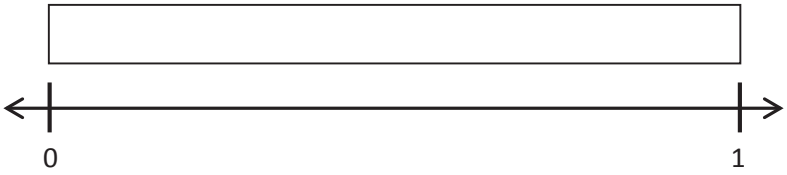
a. Halves



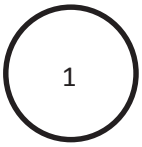


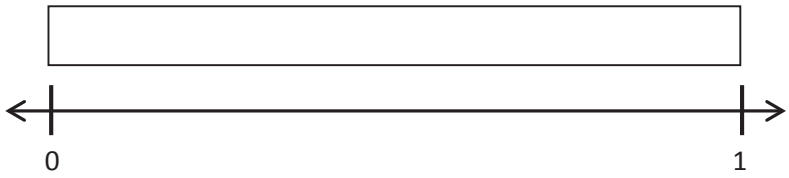
b. Thirds



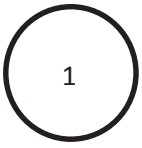


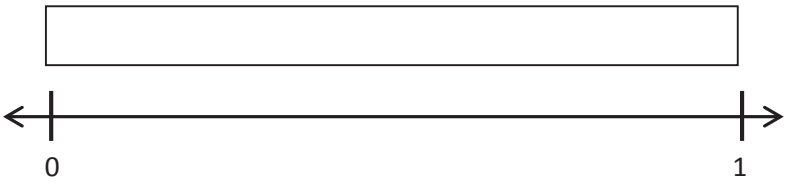
c. Fourths





d. Fifths





2. Trevor needs to let his puppy outside every quarter (1 fourth) hour to potty train him. Draw and label a number line from 0 hours to 1 hour to show every 1 fourth hour. Include 0 fourths and 4 fourths hour. Label 0 hours and 1 hour, too.

3. A ribbon is 1 meter long. Mrs. Lee wants to sew a bead every $\frac{1}{5}$ meter. The first bead is at $\frac{1}{5}$ meter. The last bead is at 1 meter. Draw and label a number line from 0 meters to 1 meter to show where Mrs. Lee will sew beads. Label all the fractions, including 0 fifths and 5 fifths. Label 0 meters and 1 meter, too.

Name _____ Date _____

1. Estimate to label the given fractions on the number line. Be sure to label the fractions at 0 and 1. Write the fractions above the number line. Draw a number bond to match your number line.

a. $\frac{2}{3}$

b. $\frac{3}{4}$

c. $\frac{3}{5}$

d. $\frac{5}{6}$

e. $\frac{3}{10}$

2. Draw a number line. Use a fraction strip to locate 0 and 1. Fold the strip to make 8 equal parts. Use the strip to measure and label your number line with eighths.

   Count up from 0 eighths to 8 eighths on your number line. Touch each number with your finger as you count.

3. For his boat, James stretched out a rope with 5 equally spaced knots as shown.

   a. Starting at the first knot and ending at the last knot, how many equal parts are formed by the 5 knots? Label each fraction at the knot.

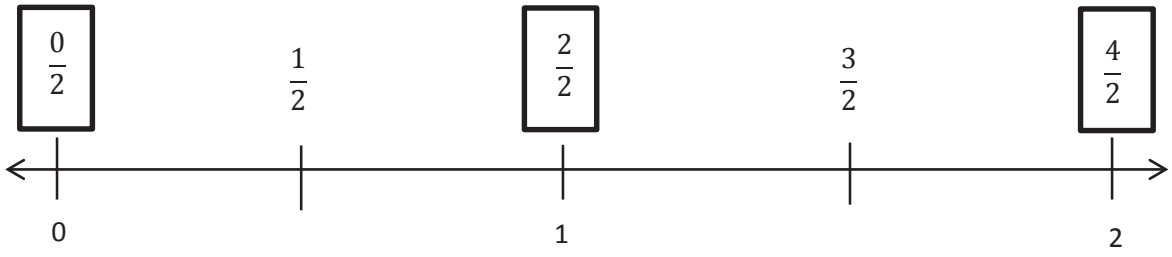
   b. What fraction of the rope is labeled at the third knot?

   c. What if the rope had 6 equally spaced knots along the same length? What fraction of the rope would be measured by the first 2 knots?

Name _____ Date _____

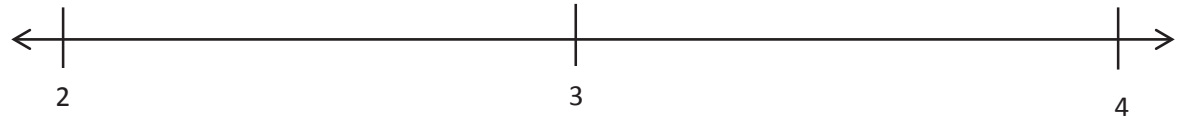
1. Estimate to equally partition and label the fractions on the number line. Label the wholes as fractions, and box them. The first one is done for you.

a. halves



b. thirds

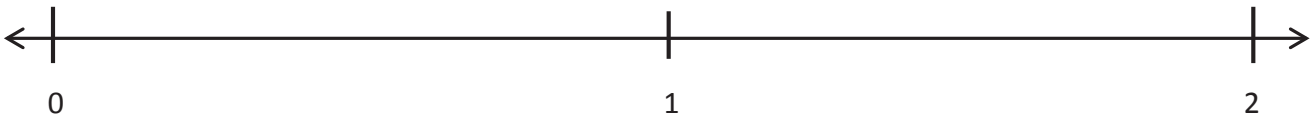
c. halves



d. fourths

e. thirds

2. Partition each whole into fifths. Label each fraction. Count up as you go. Box the fractions that are located at the same points as whole numbers.



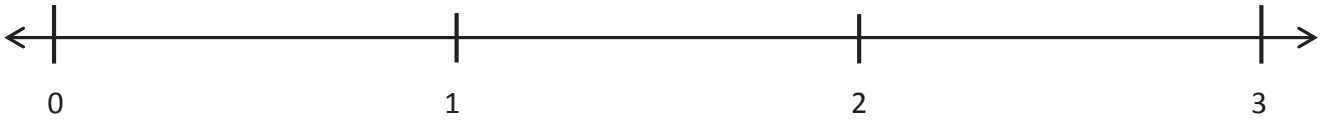
3. Partition each whole into thirds. Label each fraction. Count up as you go. Box the fractions that are located at the same points as whole numbers.

4. Draw a number line with endpoints 0 and 3. Label the wholes. Partition each whole into fourths. Label all the fractions from 0 to 3. Box the fractions that are located at the same points as whole numbers. Use a separate paper if you need more space.

Name _____ Date _____

1. Locate and label the following fractions on the number line.

$\frac{0}{6}$ $\frac{6}{6}$ $\frac{12}{6}$ $\frac{3}{6}$ $\frac{9}{6}$



0 1 2 3

2. Locate and label the following fractions on the number line.

$\frac{8}{4}$ $\frac{6}{4}$ $\frac{12}{4}$ $\frac{16}{4}$ $\frac{4}{4}$

1 2 3 4

3. Locate and label the following fractions on the number line.

$\frac{18}{3}$ $\frac{14}{3}$ $\frac{9}{3}$ $\frac{11}{3}$ $\frac{6}{3}$

2 3 4 5 6

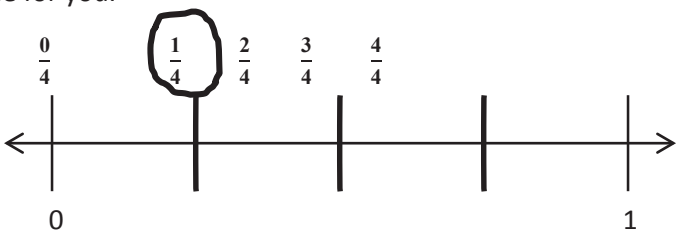
4. For a measurement project in math class, students measured the lengths of their pinky fingers. Alex's measured 2 inches long. Jerimiah's pinky finger was $\frac{7}{4}$ inches long. Whose finger is longer? Draw a number line to help prove your answer.

5. Marcy ran 4 kilometers after school. She stopped to tie her shoelace at $\frac{7}{5}$ kilometers. Then, she stopped to switch songs on her iPod at $\frac{12}{5}$ kilometers. Draw a number line showing Marcy's run. Include her starting and finishing points and the 2 places where she stopped.

Name _____ Date _____

Place the two fractions on the number line. Circle the fraction with the distance closest to 0. Then, compare using >, <, or =. The first problem is done for you.

1. $\frac{1}{4} < \frac{3}{4}$



2. $\frac{2}{6} \bigcirc \frac{3}{6}$

3. $\frac{1}{2} \bigcirc \frac{1}{4}$

4. $\frac{2}{3} \bigcirc \frac{2}{6}$

5. $\frac{11}{8} \bigcirc \frac{7}{4}$

6. JoAnn and Lupe live straight down the street from their school. JoAnn walks $\frac{5}{6}$ miles and Lupe walks $\frac{7}{8}$ miles home from school every day. Draw a number line to model how far each girl walks. Who walks the least? Explain how you know using pictures, numbers, and words.

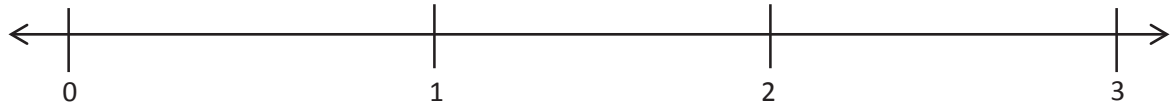
7. Cheryl cuts 2 pieces of thread. The blue thread is $\frac{5}{4}$ meters long. The red thread is $\frac{4}{5}$ meters long. Draw a number line to model the length of each piece of thread. Which piece of thread is shorter? Explain how you know using pictures, numbers, and words.

8. Brandon makes homemade spaghetti. He measures 3 noodles. One measures $\frac{7}{8}$ feet, the second is $\frac{7}{4}$ feet, and the third is $\frac{4}{2}$ feet long. Draw a number line to model the length of each piece of spaghetti. Write a number sentence using <, >, or = to compare the pieces. Explain using pictures, numbers, and words.

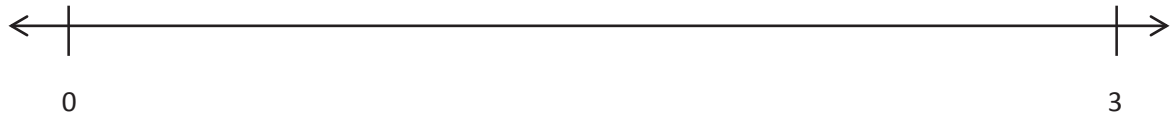
Name _____ Date _____

1. Divide each number line into the given fractional unit. Then, place the fractions. Write each whole as a fraction.

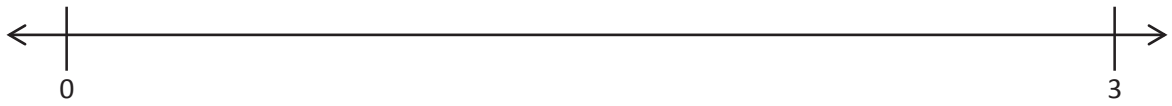
a. halves $\frac{3}{2}$ $\frac{5}{2}$ $\frac{4}{2}$



b. fourths $\frac{9}{4}$ $\frac{11}{4}$ $\frac{6}{4}$



c. eighths $\frac{24}{8}$ $\frac{19}{8}$ $\frac{16}{8}$



2. Use the number lines above to compare the following fractions using >, <, or =.

$\frac{6}{4}$ ◯ $\frac{9}{4}$ $\quad$ $\frac{3}{2}$ ◯ $\frac{5}{2}$ $\quad$ $\frac{19}{8}$ ◯ $\frac{16}{8}$

$\frac{16}{8}$ ◯ $\frac{3}{2}$ $\quad$ $\frac{9}{4}$ ◯ $\frac{19}{8}$ $\quad$ $\frac{4}{2}$ ◯ $\frac{16}{8}$

$\frac{6}{4}$ ◯ $\frac{16}{8}$ $\quad$ $\frac{5}{2}$ ◯ $\frac{9}{4}$ $\quad$ $\frac{24}{8}$ ◯ $\frac{11}{4}$

3. Choose a *greater than* comparison you made in Problem 2. Use pictures, numbers, and words to explain how you made that comparison.

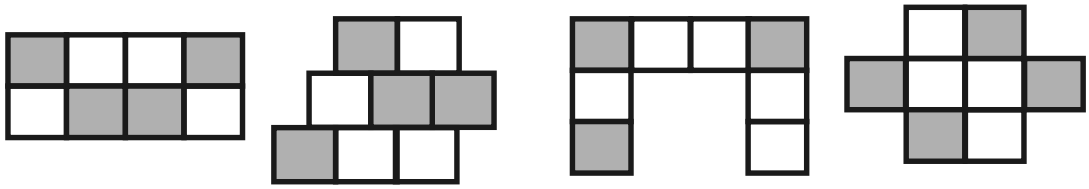
4. Choose a *less than* comparison you made in Problem 2. Use pictures, numbers, and words to explain a different way of thinking about the comparison than what you wrote in Problem 3.

5. Choose an *equal to* comparison you made in Problem 2. Use pictures, numbers, and words to explain two ways that you can prove your comparison is true.

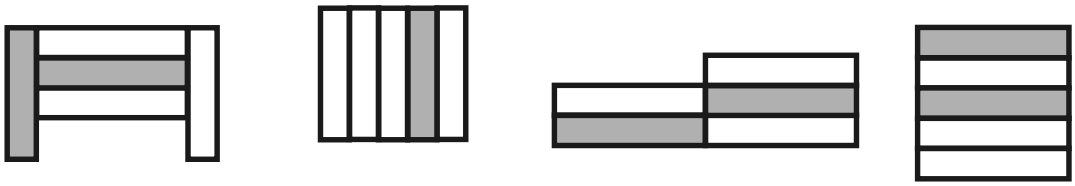
Name _____ Date _____

1. Label what fraction of each shape is shaded. Then, circle the fractions that are equal.

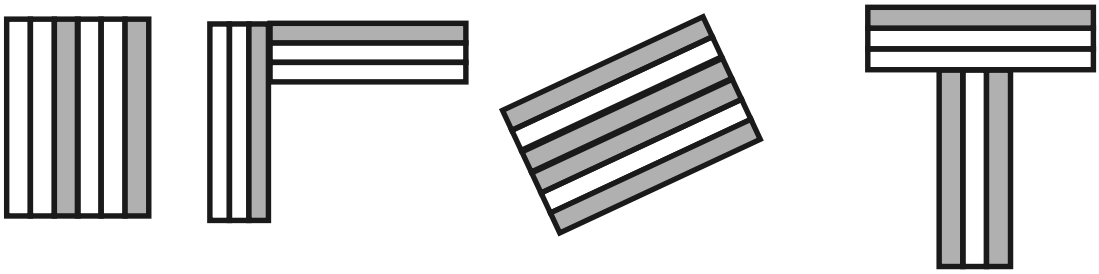
a.



b.



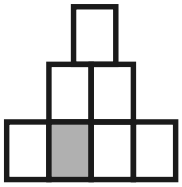
c.



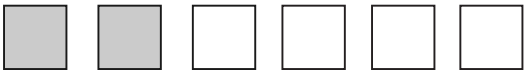
2. Label the shaded fraction. Draw 2 different representations of the same fractional amount.

a.

b.



3. Ann has 6 small square pieces of paper. 2 squares are grey. Ann cuts the 2 grey squares in half with a diagonal line from one corner to the other.

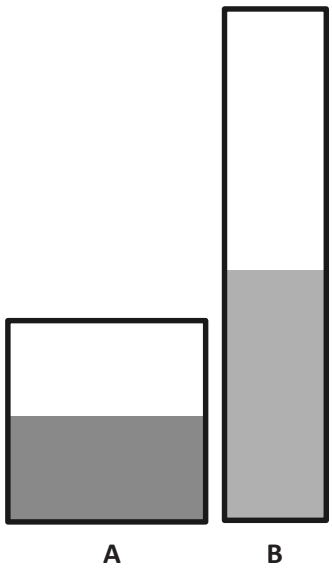


a. What shapes does she have now?

b. How many of each shape does she have?

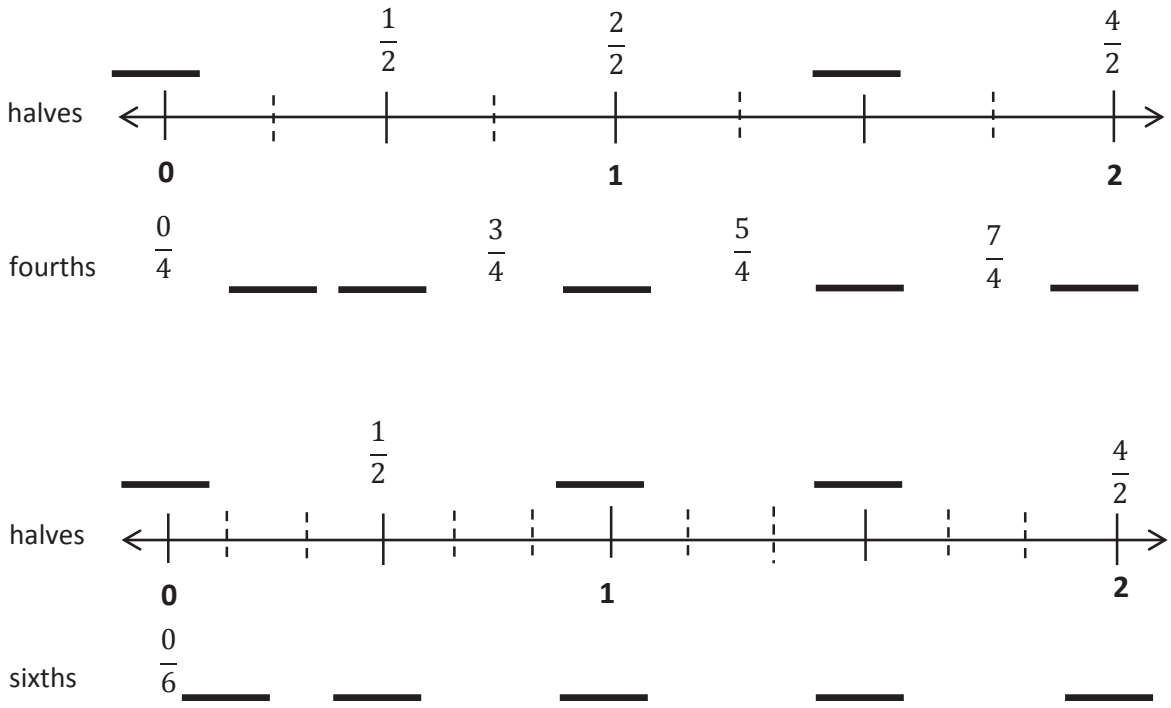
c. Use all the shapes with no overlaps. Draw at least 2 different ways Ann's set of shapes might look. What fraction of the figure is grey?

4. Laura has 2 different beakers that hold exactly 1 liter. She pours $\frac{1}{2}$ liter of blue liquid into Beaker A. She pours $\frac{1}{2}$ liter of orange liquid into Beaker B. Susan says the amounts are not equal. Cristina says they are. Explain who you think is correct and why.



Name _____ Date _____

1. Use the fractional units on the left to count up on the number line. Label the missing fractions on the blanks.



2. Use the number lines above to:
   - Color fractions equal to 1 half blue.
   - Color fractions equal to 1 yellow.
   - Color fractions equal to 3 halves green.
   - Color fractions equal to 2 red.

3. Use the number lines above to make the number sentences true.

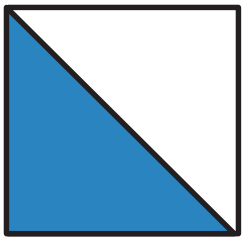
$\frac{2}{4} = \frac{\quad}{6}$ $\frac{6}{6} = \frac{2}{\quad} = \quad$ $\frac{3}{2} = \frac{\quad}{6} = \frac{6}{\quad}$

4. Jack and Jill use rain gauges the same size and shape to measure rain on the top of a hill. Jack uses a rain gauge marked in fourths of an inch. Jill's gauge measures rain in eighths of an inch. On Thursday, Jack's gauge measured $\frac{2}{4}$ inches of rain. They both had the same amount of water, so what was the reading on Jill's gauge Thursday? Draw a number line to help explain your thinking.

5. Jack and Jill's baby brother Rosco also had a gauge the same size and shape on the same hill. He told Jack and Jill that there had been $\frac{1}{2}$ inch of rain on Thursday. Is he right? Why or why not? Use words and a number line to explain your answer.

Name _____ Date _____

1. Write the shaded fraction of each figure on the blank. Then, draw a line to match the equivalent fractions.



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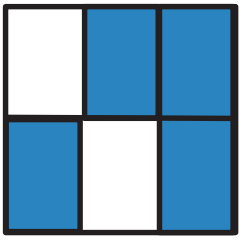

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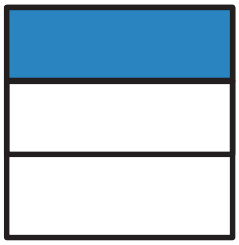

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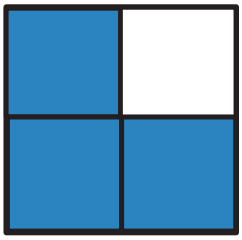

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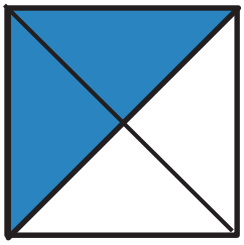

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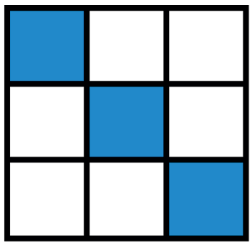

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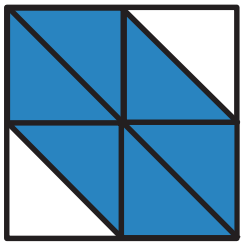
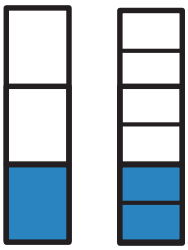
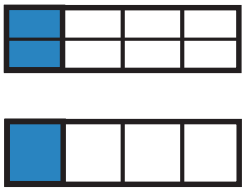


_____

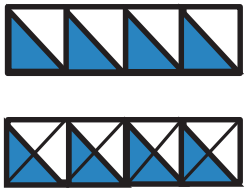
2. Write the missing parts of the fractions.



$\frac{1}{3} = \frac{\quad}{6}$



$\frac{2}{\quad} = \frac{1}{4}$



$\frac{4}{8} = \frac{8}{\quad}$

3. Why does it take 2 copies of $\frac{1}{8}$ to show the same amount as 1 copy of $\frac{1}{4}$? Explain your answer in words and pictures.

4. How many sixths does it take to make the same amount as $\frac{1}{3}$? Explain your answer in words and pictures.

5. Why does it take 10 copies of 1 sixth to make the same amount as 5 copies of 1 third? Explain your answer in words and pictures.

Name _____ Date _____

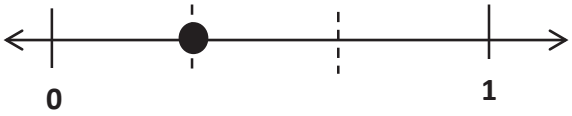
1. On the number line above, use a red colored pencil to divide each whole into fourths, and label each fraction above the line. Use a fraction strip to help you estimate, if necessary.

2. On the number line above, use a blue colored pencil to divide each whole into eighths, and label each fraction below the line. Refold your fraction strip from Problem 1 to help you estimate.

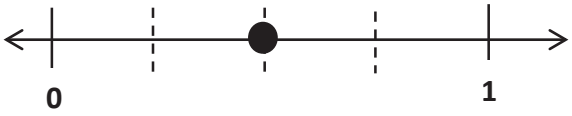
3. List the fractions that name the same place on the number line.

4. Using your number line to help, what red fraction and what blue fraction would be equal to $\frac{7}{2}$? Draw the part of the number line below that would include these fractions, and label it.

5. Write two different fractions for the dot on the number line. You may use halves, thirds, fourths, fifths, sixths, or eighths. Use fraction strips to help you, if necessary.

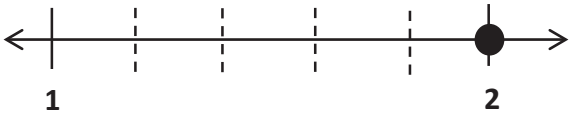


_____ = _____



_____ = _____

_____ = _____



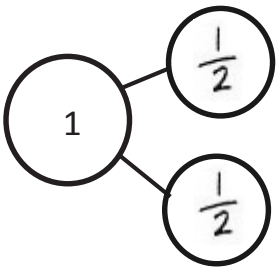
_____ = _____

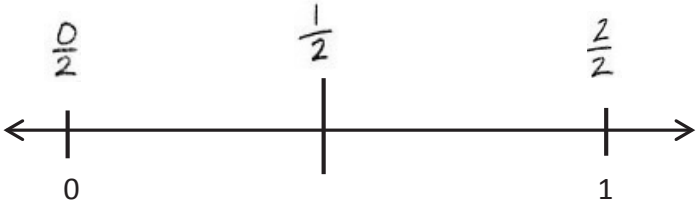
6. Cameron and Terrance plan to run in the city race on Saturday. Cameron has decided that he will divide his race into 3 equal parts and will stop to rest after running 2 of them. Terrance divides his race into 6 equal parts and will stop and rest after running 2 of them. Will the boys rest at the same spot in the race? Why or why not? Draw a number line to explain your answer.

Name _____ Date _____

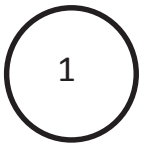
1. Complete the number bond as indicated by the fractional unit. Partition the number line into the given fractional unit, and label the fractions. Rename 0 and 1 as fractions of the given unit. The first one is done for you.

Halves

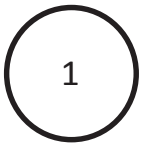




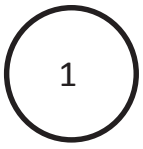
Thirds



Fourths

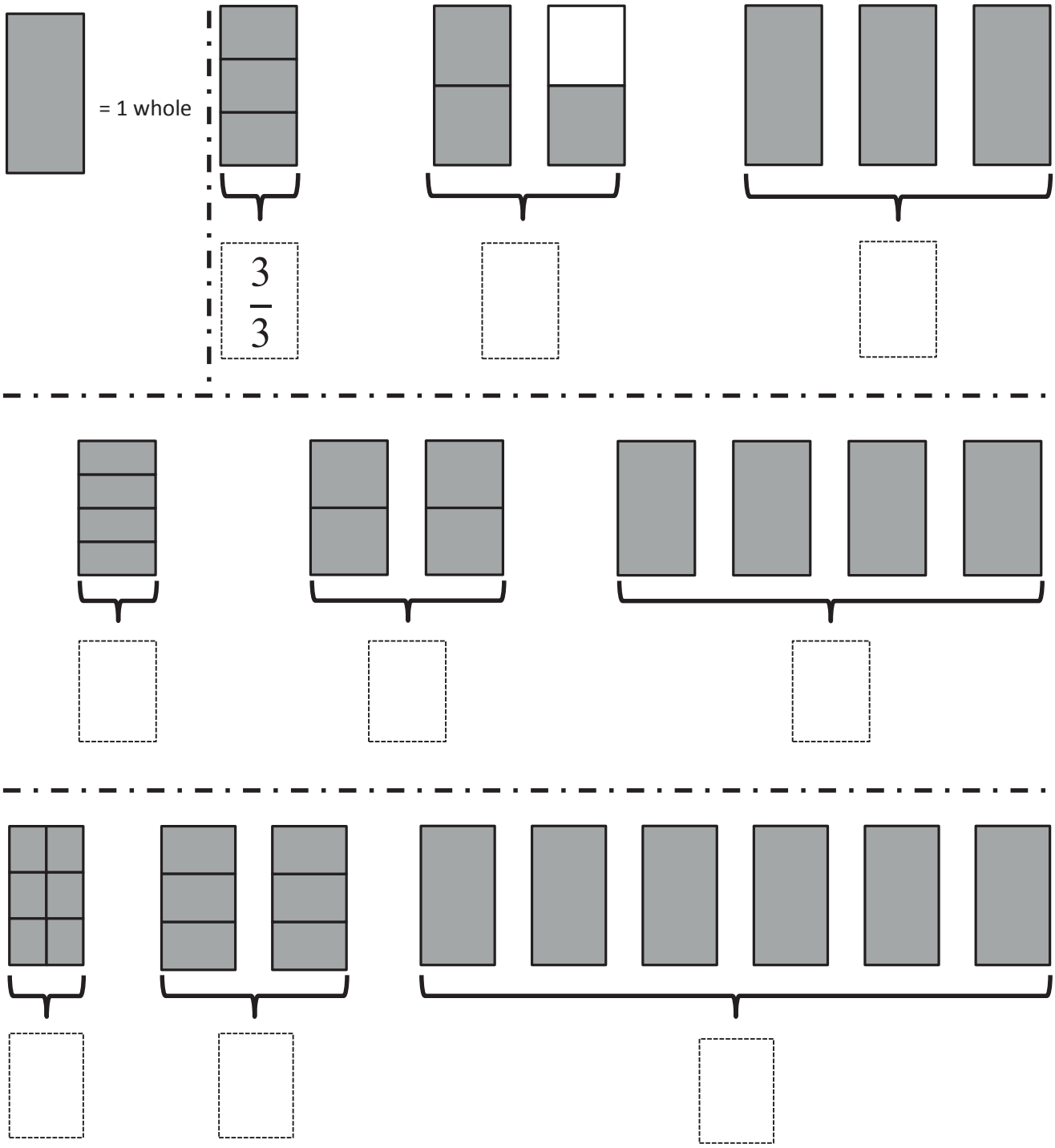


Fifths

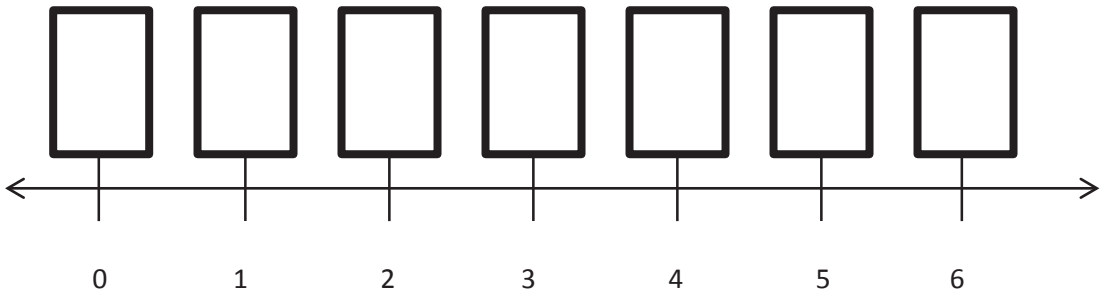


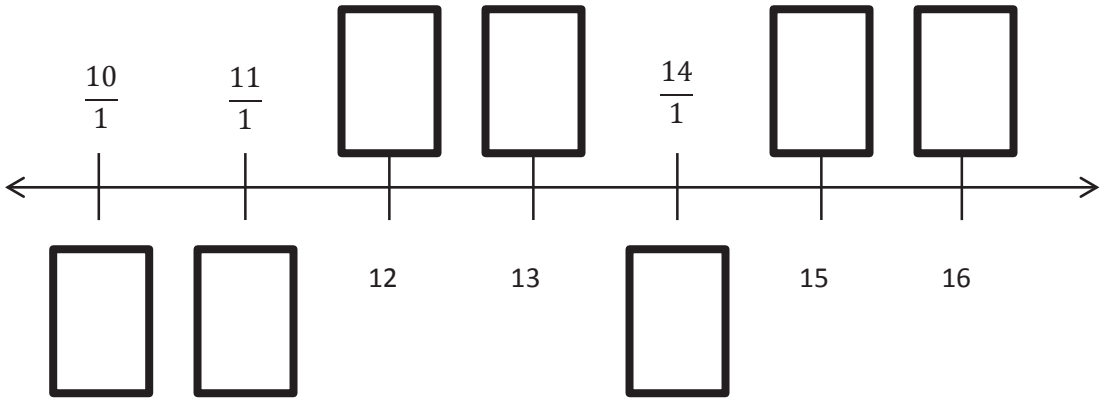
Name _____ Date _____

1. Label the following models as a fraction inside the dotted box. The first one has been done for you.



2. Fill in the missing whole numbers in the boxes below the number line. Rename the whole numbers as fractions in the boxes above the number line.



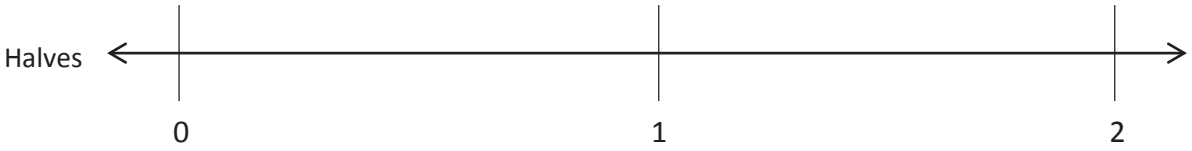


3. Explain the difference between these two fractions with words and pictures.

$$\frac{2}{1} \qquad \frac{2}{2}$$

Name _____ Date _____

1. Partition the number line to show the fractional units. Then, draw number bonds using copies of 1 whole for the circled whole numbers.



0 = _____ halves

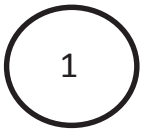
$0 = \frac{\square}{2}$

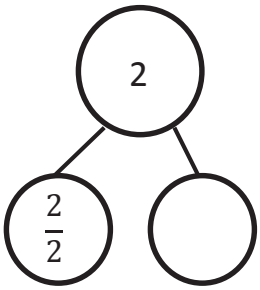
1 = _____ halves

$1 = \frac{\square}{2}$

2 = _____ halves

$2 = \frac{4}{2}$





2 = _____ thirds

$2 = \frac{\square}{3}$

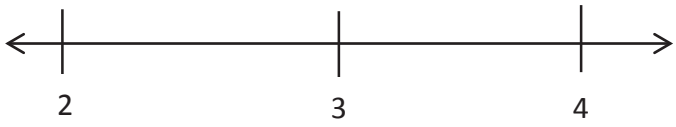
3 = _____ thirds

$3 = \frac{\square}{3}$

4 = _____ thirds

$4 = \frac{\square}{3}$

2. Write the fractions that name the whole numbers for each fractional unit. The first one has been done.



Halves	$\frac{4}{2}$	$\frac{6}{2}$	$\frac{8}{2}$
Thirds			
Fourths			
Sixths			

3. Sammy uses $\frac{1}{4}$ meter of wire each day to make things.

   a. Draw a number line to represent 1 meter of wire. Partition the number line to represent how much Sammy uses each day. How many days does the wire last?

   b. How many days will 3 meters of wire last?

4. Cindy feeds her dog $\frac{1}{3}$ pound of food each day.

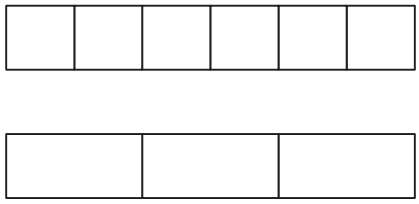
   a. Draw a number line to represent 1 pound of food. Partition the number line to represent how much food she uses each day.

   b. Draw another number line to represent 4 pounds of food. After 3 days, how many pounds of food has she given her dog?

   c. After 6 days, how many pounds of food has she given her dog?

Name _____ Date _____

1. Use the pictures to model equivalent fractions. Fill in the blanks, and answer the questions.



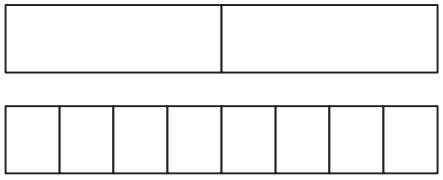
4 sixths is equal to _____ thirds.

$$\frac{4}{6} = \frac{\square}{3}$$

The whole stays the same.

What happened to the size of the equal parts when there were fewer equal parts?

What happened to the number of equal parts when the equal parts became larger?



1 half is equal to _____ eighths.

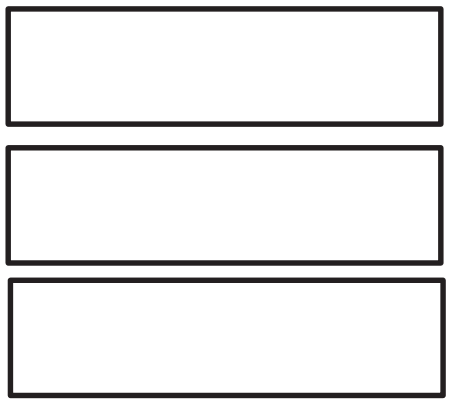
$$\frac{1}{2} = \frac{\square}{8}$$

The whole stays the same.

What happened to the size of the equal parts when there were more equal parts?

What happened to the number of equal parts when the equal parts became smaller?

2. 6 friends want to share 3 chocolate bars that are all the same size, which are represented by the 3 rectangles below. When the bars are unwrapped, the friends notice that the first chocolate bar is cut into 2 equal parts, the second is cut into 4 equal parts, and the third is cut into 6 equal parts. How can the 6 friends share the chocolate bars equally without breaking any of the pieces?



3. When the whole is the same, why does it take 6 copies of 1 eighth to equal 3 copies of 1 fourth? Draw a model to support your answer.

4. When the whole is the same, how many sixths does it take to equal 1 third? Draw a model to support your answer.

5. You have a magic wand that doubles the number of equal parts but keeps the whole the same size. Use your magic wand. In the space below, draw to show what happens to a rectangle that is partitioned in fourths after you tap it with your wand. Use words and numbers to explain what happened.

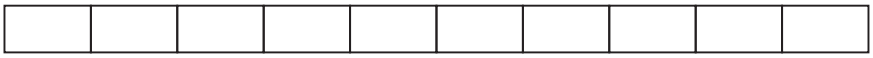
Name _____ Date _____

Shade the models to compare the fractions. Circle the larger fraction for each problem.

1. 2 fifths

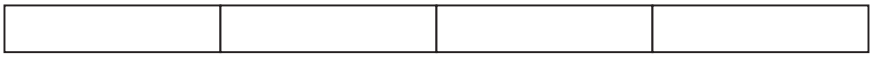
2 thirds

2. 2 tenths

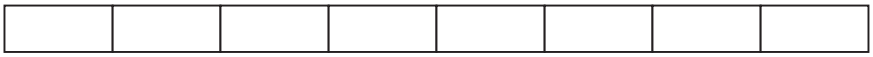


2 eighths

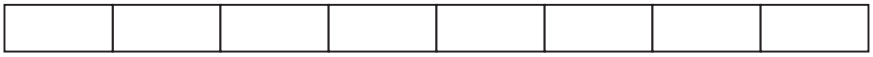
3. 3 fourths



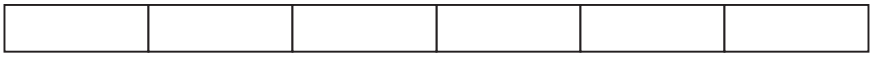
3 eighths



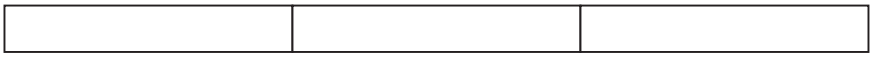
4. 4 eighths



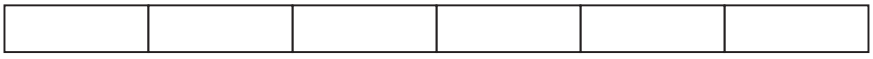
4 sixths



5. 3 thirds



3 sixths



6. After softball, Leslie and Kelly each buy a half-liter bottle of water. Leslie drinks 3 fourths of her water. Kelly drinks 3 fifths of her water. Who drinks the least amount of water? Draw a picture to support your answer.

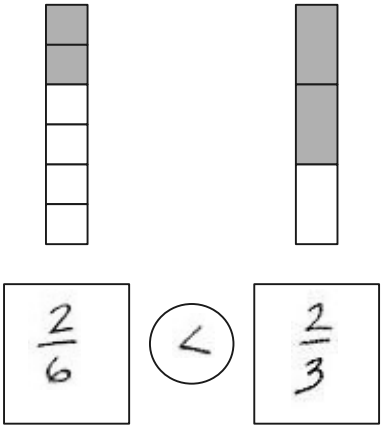
7. Becky and Malory get matching piggy banks. Becky fills $\frac{2}{3}$ of her piggy bank with pennies. Malory fills $\frac{2}{4}$ of her piggy bank with pennies. Whose piggy bank has more pennies? Draw a picture to support your answer.

8. Heidi lines up her dolls in order from shortest to tallest. Doll A is $\frac{2}{4}$ foot tall, Doll B is $\frac{2}{6}$ foot tall, and Doll C is $\frac{2}{3}$ foot tall. Compare the heights of the dolls to show how Heidi puts them in order. Draw a picture to support your answer.

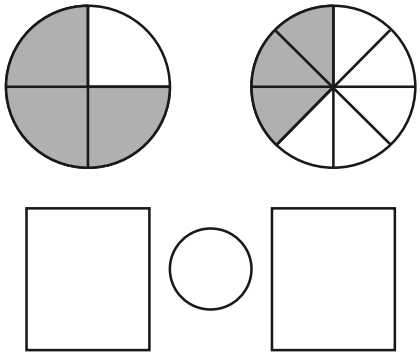
Name _____ Date _____

Label each shaded fraction. Use >, <, or = to compare. The first one has been done for you.

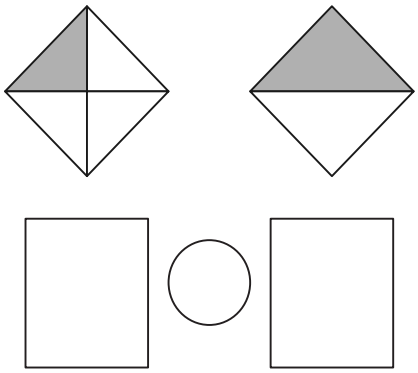
1.



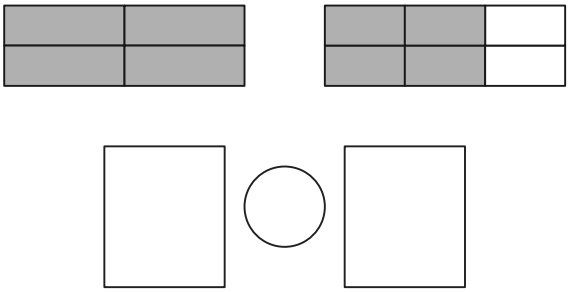
2.



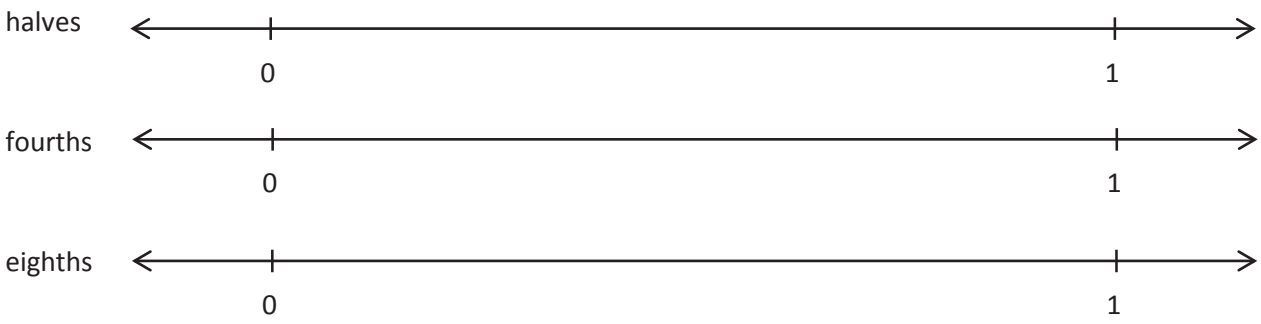
3.



4.



5. Partition each number line into the units labeled on the left. Then, use the number lines to compare the fractions.



a. $\frac{3}{8}$ ◯ $\frac{3}{4}$

b. $\frac{4}{4}$ ◯ $\frac{4}{8}$

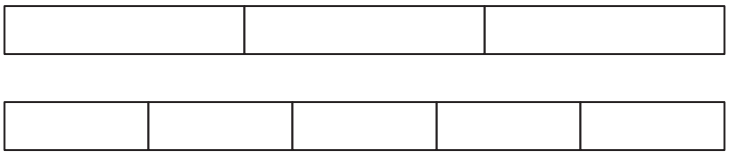
c. $\frac{2}{4}$ ◯ $\frac{2}{8}$

Draw your own model to compare the following fractions.

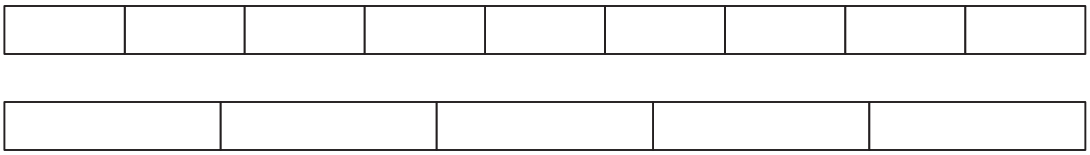
6. $\frac{3}{10}$ ◯ $\frac{3}{5}$

7. $\frac{2}{6}$ ◯ $\frac{2}{8}$

8. John ran 2 thirds of a kilometer after school. Nicholas ran 2 fifths of a kilometer after school. Who ran the shorter distance? Use the model below to support your answer. Be sure to label 1 whole as 1 kilometer.



9. Erica ate 2 ninths of a licorice stick. Robbie ate 2 fifths of an identical licorice stick. Who ate more? Use the model below to support your answer.

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