

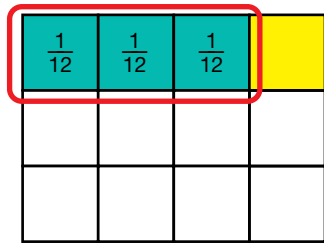
LETTER HOME

Fraction Operations

Dear Family Member:

Students have been developing strategies for representing, comparing, and finding equivalent fractions. In this unit, students extend these representations and strategies to develop models and methods for adding, subtracting, multiplying, and dividing fractions. For example: *Carl ordered a pizza. One-third of the pizza had sausage on it. Three-fourths of that part also had mushrooms. What fraction of the pizza had sausage and mushrooms?*

rectangle model:

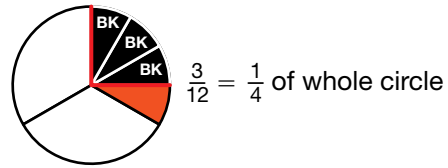


$$\frac{1}{3} \times \frac{3}{4} = \frac{3}{12} \text{ or } \frac{1}{4}$$

paper and pencil:

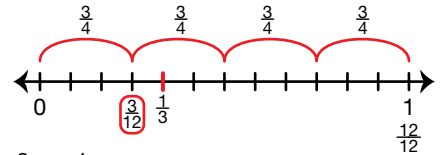
$$\frac{1}{3} \times \frac{3}{4} = \frac{1 \times 3}{3 \times 4} = \frac{3}{12} \text{ or } \frac{1}{4}$$

fraction circle pieces:



$$\frac{1}{3} \times \frac{3}{4} = \frac{3}{12} = \frac{1}{4} \text{ of the whole circle}$$

number line:



$\frac{3}{4}$ of $\frac{1}{3}$ divides the whole into twelfths

Students use fraction circle pieces, drawings, paper folding (rectangles), and number line models to make sense of the operation and what happens to the result when working with fractions.

As we work together in class, here are some ways you can help your child at home:

This unit continues a systematic review and assessment of the multiplication and division facts.

Draw Pictures. Ask your child to draw a picture or representation of the problem. As shown above, students have been exposed to a variety of representations that make sense for different problem situations.

Make Sense of the Steps. Students that build on their number sense of fractions develop efficient and flexible strategies for adding, subtracting, and multiplying fractions. Encourage your child to estimate and check if his or her responses are reasonable to identify errors in calculations.

Convert a Favorite Recipe. Help your child identify a favorite family recipe and ask him or her to adjust the recipe ingredients for a larger or smaller number of people.

Thank you for taking time to talk with your child about what he or she is learning in math.

Sincerely,

Unit 10: Home Practice

Part 1 Multiplication and Division Practice

Choose a strategy to solve each problem. Use resources in the *Student Guide Reference* section.

1. A. $8967 \div 6 =$

B. $5875 \div 50 =$

C. $246 \times 9 =$

D. $2400 \div 30 =$

E. $105 \times 4 =$

2. Can you solve any of the above problems using mental math? If so, explain your strategies.

Part 2 Division Practice

Use a mental math strategy to solve each division problem. Write remainders using whole numbers.

A. $33 \div 4 =$

B. $76 \div 9 =$

C. $17 \div 2 =$

D. $108 \div 10 =$

E. $54 \div 7 =$

F. $41 \div 6 =$

G. $42 \div 8 =$

H. $23 \div 6 =$

I. $67 \div 8 =$

Part 3 Making Brownies

Below is a list of ingredients Manny uses to make one batch of brownies.

Walnut Crunch Brownies

4 squares chocolate

$\frac{3}{4}$ cup butter

$1\frac{1}{2}$ cups sugar

4 eggs

1 teaspoon vanilla

$\frac{2}{3}$ cup flour

$\frac{1}{4}$ cup walnuts

1. Manny only has 2 eggs at home. He plans to make half a recipe. List how much of each ingredient he needs.
2. Manny shares his original recipe with Felicia. She plans to double the recipe. How much of each ingredient does she need?

Part 4 Analyze the Class

There are of 24 students in a class.

1. .25 of the students are left-handed. How many students are left-handed?
2. $\frac{1}{3}$ of the class is wearing jeans. How many students are wearing jeans?
3. 18 students did extra credit math work. What fraction of the class did extra credit work?
4. Write the fraction in Question 3 as a decimal.
5. 12 students are girls. What fraction of the students are boys?

Part 5 The End of the School Year

Choose an appropriate method to solve each of the following problems. For some questions you may need to find an exact answer, while for others you may need only an estimate. For each question, you may choose to use paper and pencil, mental math, or a calculator. Use a separate sheet of paper to explain how you solved each problem.

1. On the last day of school, Mr. Moreno collected his students' books. If each of his 22 students returns all of his or her books, Mr. Moreno should have 132 textbooks. How many text books did each student use during the year?
2. If a student loses a school library book, he or she must pay for the book. If the book is returned late, the student must pay a fine of 5¢ a day for every day it was late. Manny should have returned a book by March 25. It is June 2. If the book costs \$3.95, is it cheaper for Manny to buy the book or return it and pay the overdue fine? Share your strategies.
3. Six students stayed after school to help Mr. Moreno pack up the classroom. He treated them to juice and popcorn. If Mr. Moreno bought 6 cans of juice from the machine in the teacher's lounge, it would have cost him 50¢ per can. Instead, on the way to school he bought six cans of juice for \$2.69. About how much did Mr. Moreno save per can?
4. On the way home, Blanca and Edward stopped at the park to play basketball. They both tried to shoot free throws. They both averaged 2 successful free throws out of 5 tries.
 - A. If Blanca tried 20 times, how many free throws did she make?
 - B. Edward made 12 free throws. How many times did he try?
5. Mr. Moreno decorated one bulletin board for next fall. Then he covered the board with butcher paper, so his decorations wouldn't fade. The bulletin board is 2.4 meters long and 1.3 meters wide. What is the area of the bulletin board in square meters?

Part 6 Food for Thought

Solve the following problems. You may use any of the tools you have used in class such as calculators, drawings, circle pieces or resources from the *Student Guide Reference* section. Show your solutions.

1. **A.** If three friends split $1\frac{1}{2}$ pizzas evenly, how much of a whole pizza will each person eat?

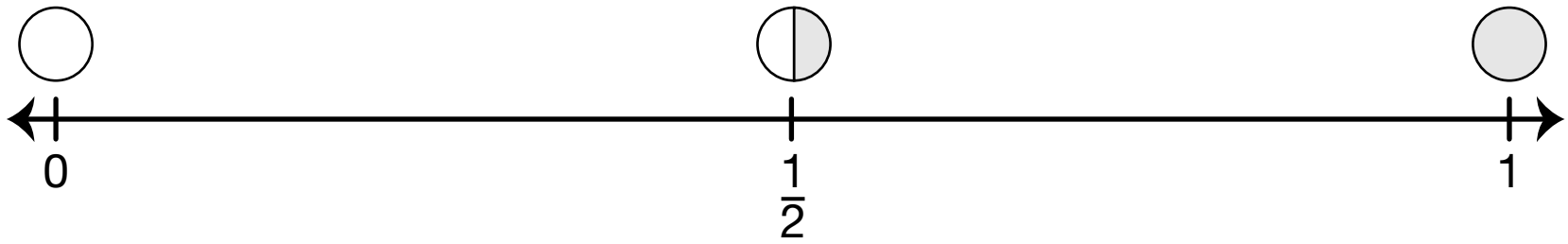
B. If six friends split $1\frac{1}{2}$ pizzas, how much of a whole pizza will each person eat?

2. Michael's father made a pumpkin pie. Michael and his brother couldn't wait until after dinner to eat the pie. Michael ate $\frac{1}{8}$ of the pie. His brother ate $\frac{1}{4}$ of the pie. What fraction of the whole pie was left for dessert after dinner?

3. Ana is making nut bread for a bake sale. The recipe for one loaf of bread calls for $\frac{3}{4}$ cup of nuts. If she wants to make 5 loaves of bread, how many cups of nuts does she need?

4. David is making orange punch. He combines $5\frac{1}{4}$ cups of orange juice with $2\frac{2}{3}$ cups of sparkling water. Can he pour all the punch into a 2-quart pitcher? Why or why not? (1 quart = 4 cups)

Benchmark Fractions Number Line



Name _____ Date _____

Fraction Sums and Differences Check-In: Questions 5–7 Feedback Box

	Expectation	Check In	Comments
Estimate sums and differences of fractions using benchmarks and mental math strategies. [Q# 6]	E9		
Add and subtract fractions including those with unlike denominators using area models and paper-and-pencil methods. [Q# 7]	E8		

Yes ...

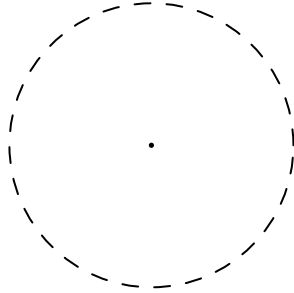
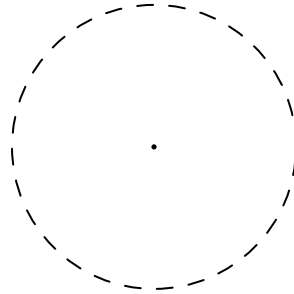
Yes, but ...

No, but ...

No...

	Yes ...	Yes, but ...	No, but ...	No...
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem. [Q# 7]				
MPE3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again. [Q# 5]				

Blank Use Equivalent Fractions to Add and Subtract

Sum or Difference	Equivalent Fractions		Number Sentence and Circle Pieces
			
			

Name _____ Date _____

Multiplication Facts

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140
8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160
9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	162	171	180
10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
11	22	33	44	55	66	77	88	99	110	121	132	143	154	165	176	187	198	209	220
12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240
13	26	39	52	65	78	91	104	117	130	143	156	169	182	195	208	221	234	247	260
14	28	42	56	70	84	98	112	126	140	154	168	182	196	210	224	238	252	266	280
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320
17	34	51	68	85	102	119	136	153	170	187	204	221	238	255	272	289	306	323	340
18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306	324	342	360
19	38	57	76	95	114	133	152	171	190	209	228	247	266	285	304	323	342	361	380
20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400

Name _____ Date _____

Using Common Denominators

Check-In: Question 13

Feedback Box

	Expectation	Check In	Comments
Find equivalent fractions using fraction circle pieces, number lines, and multiplication and division strategies.	E1		
Represent addition of fractions with number sentences.	E3		
Solve word problems involving addition of fractions.	E5		
Add and subtract fractions with unlike denominators using area models and paper-and-pencil methods.	E8		
Estimate sums and differences of fractions using benchmarks and mental math strategies.	E9		
Find common denominators and use them to add and subtract fractions.	E10		

Name _____ Date _____

	Yes ...	Yes, but ...	No, but ...	No ...
MPE1. Know the Problem. I read the problem carefully. I know the questions to answer and what information is important.				
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem.				
MPE3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again.				
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.				
MPE6. Use labels. I use labels to show what number mean.				

Working with Fractions Quiz

You may use fraction circle pieces and any pages in the *Student Guide Reference* section as you work.

1. Write two equivalent fractions for each of the fractions below.

A. $\frac{1}{6} = \frac{\square}{\square} = \frac{\square}{\square}$

B. $\frac{12}{16} = \frac{\square}{\square} = \frac{\square}{\square}$

2. Compare the fractions by writing =, >, or < in the box.

A. $\frac{4}{6} \square \frac{5}{8}$

B. $\frac{12}{18} \square \frac{2}{3}$

- C. Show or tell how you found your answer for Question 2A.

3. Write $\frac{3}{7}$, $\frac{1}{4}$, and $\frac{3}{8}$ in order from smallest to largest.

$$\square < \square < \square$$

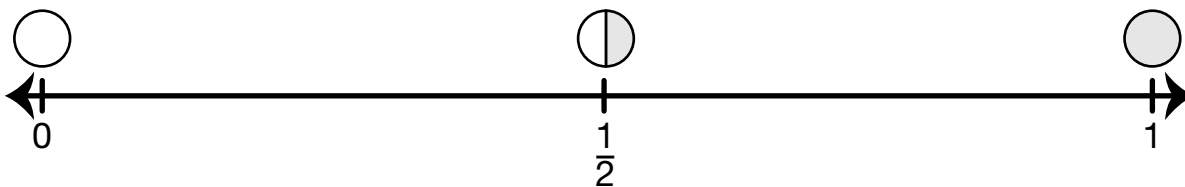
4. Find the following fraction sums or differences. Be sure your answers are in the simplest form. Show or tell how you found your answer for each. Estimate to be sure your answers are reasonable.

A. $\frac{3}{4} + \frac{2}{3}$

B. $\frac{5}{6} - \frac{1}{3}$

C. $\frac{5}{10} + \frac{1}{4} + \frac{1}{5}$

- D. Show how you estimated to be sure your answer to 4B is reasonable.



5. Keenya and Maya went apple picking. They made a table to show the amount of apples they picked. Which girl picked more total apples? Show or tell how you found your answer and include labels.

Amount of Apples Picked

	Keenya	Maya
McIntosh apples	$\frac{1}{4}$ basket	$\frac{1}{2}$ basket
Granny Smith apples	$\frac{3}{5}$ basket	$\frac{2}{5}$ basket

Name _____ Date _____

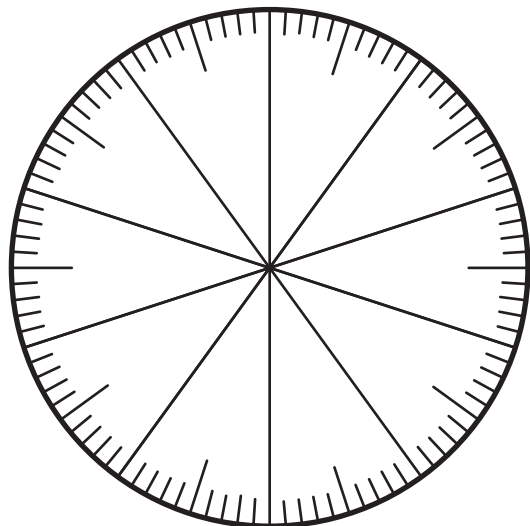
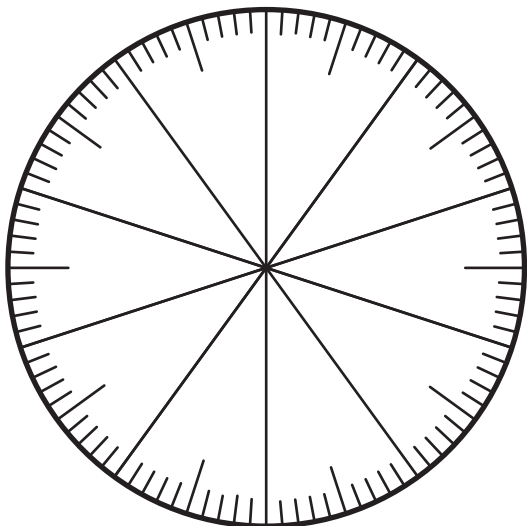
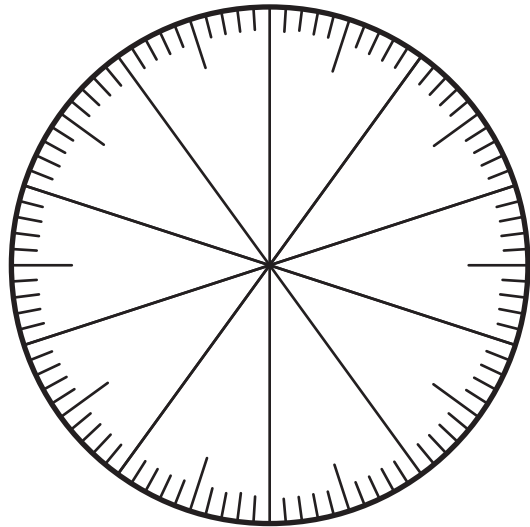
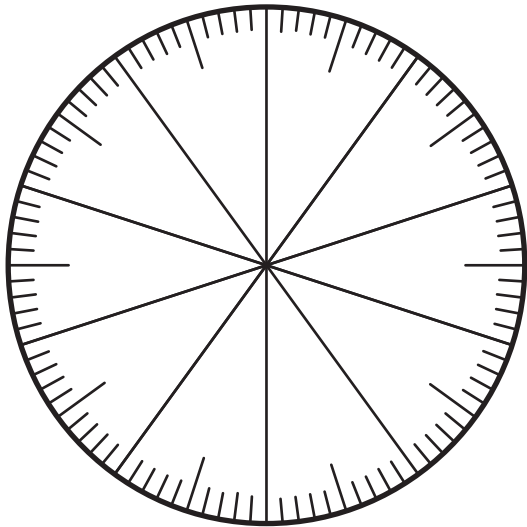
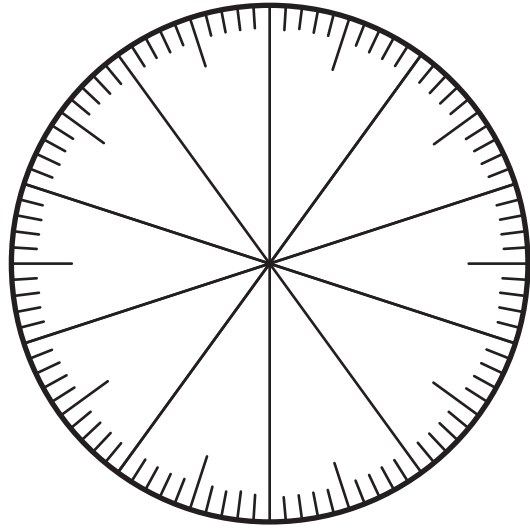
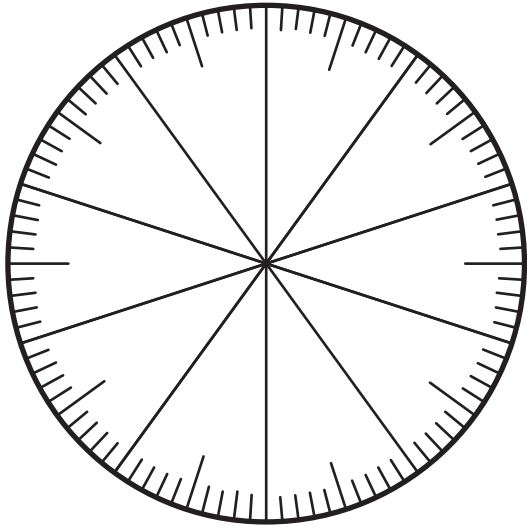
**Working with Fractions Quiz
Feedback Box**

	Expectation	Check In	Comments
Find equivalent fractions using fraction circle pieces, number lines, and multiplication and division strategies. [Q# 1A–B]	E1		
Solve word problems involving addition of fractions. [Q# 5]	E5		
Add and subtract fractions with unlike denominators using area models and paper-and-pencil methods. [Q# 4–5]	E8		
Estimate sums of fractions using benchmarks and mental math strategies. [Q# 4]	E9		
Find common denominators and use them to <ul style="list-style-type: none"> • add fractions. [Q# 4A, 4C, 5] • subtract fractions. [Q# 4B] • compare fractions. [Q# 2–3] 	E10		

Name _____ Date _____

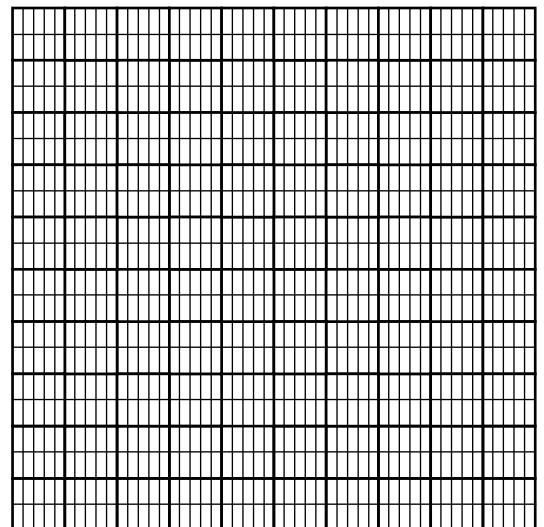
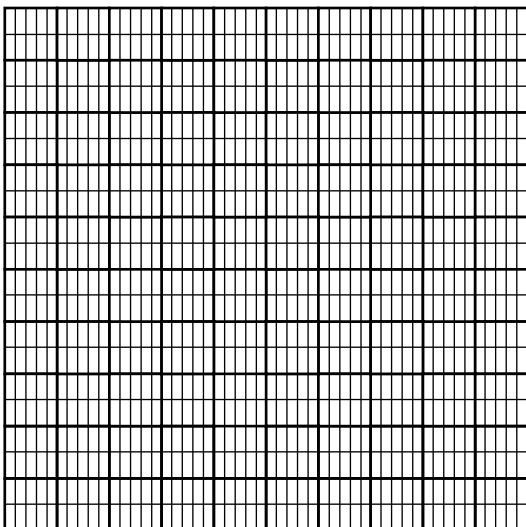
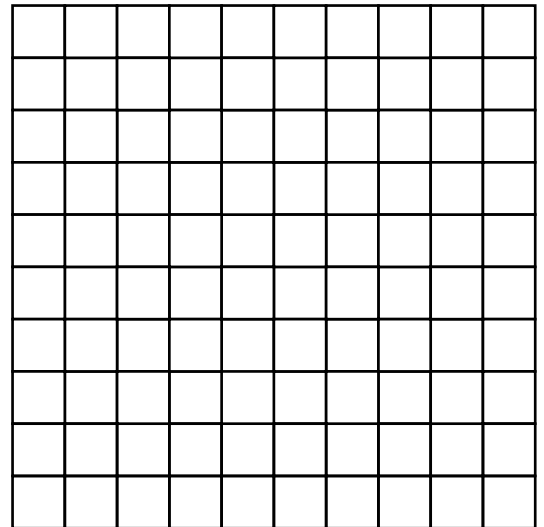
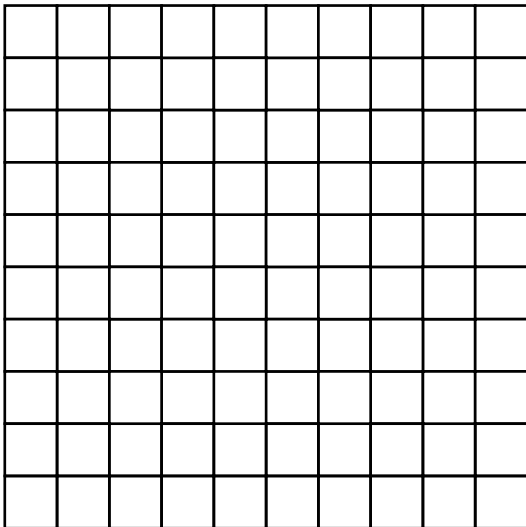
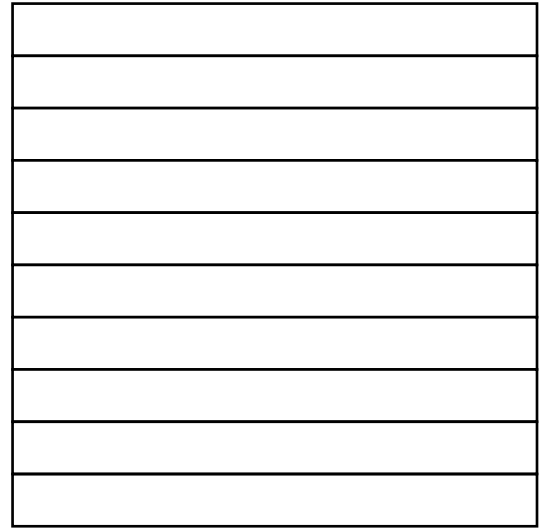
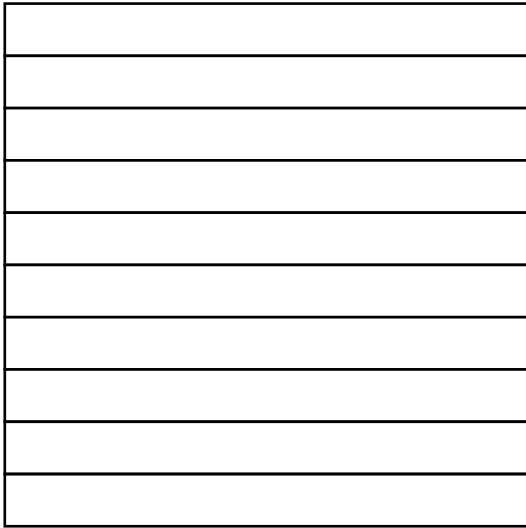
	Yes ...	Yes, but ...	No, but ...	No ...
MPE1. Know the problem. I read the problem carefully. I know the questions to answer and what information is important. [Q# 5]				
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem. [Q# 2C, 4D, 5]				
MPE3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again. [Q# 4D]				
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking. [Q# 5]				
MPE6. Use labels. I use labels to show what number mean. [Q# 5]				

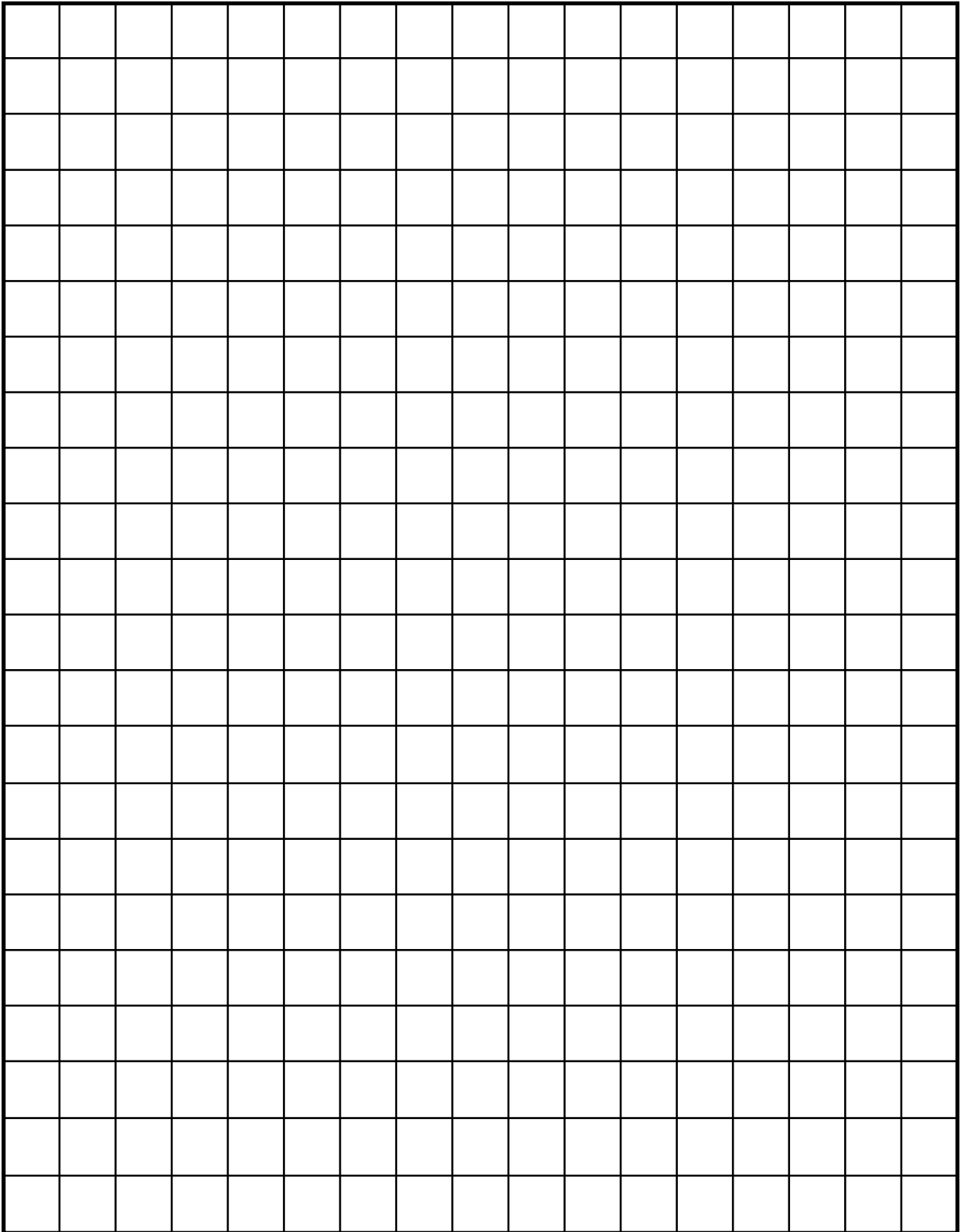
Hundredths Circles



Copyright © Kendall Hunt Publishing Company

Decimal Grids





Copyright © Kendall Hunt Publishing Company

Name _____ Date _____

Add Mixed Numbers Check-In: Questions 9–13 Feedback Box

	Expectation	Check In	Comments
Find equivalent fractions using tools and strategies. [Q# 9–11]	E1		
Add mixed numbers using mental math, fraction circle pieces, and paper-and-pencil methods. [Q# 9–11, 13]	E8		
Find common denominators and use them to add mixed numbers. [Q# 9–11]	E10		
Simplify fractions to simplest form. [Q# 9–11]	E2		
Estimate differences of mixed numbers. [Q# 12]	E9		

	Yes ...	Yes, but ...	No, but ...	No ...
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem. [Q# 9–11]				
MPE3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again. [Q# 12–13]				

Name _____ Date _____

Subtract Mixed Numbers Check-In: Questions 8–11 Feedback Box

	Expectation	Check In	Comments
Find equivalent fractions using tools and strategies. [Q# 8–10]	E1		
Subtract mixed numbers using mental math, fraction circle pieces, and paper-and-pencil methods. [Q# 8–10]	E8		
Find common denominators and use them to subtract mixed numbers. [Q# 8–10]	E10		
Simplify fractions to simplest form. [Q# 8–10]	E2		
Estimate differences of mixed numbers. [Q# 11]	E9		

	Yes ...	Yes, but ...	No, but ...	No ...
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem [Q# 8–10]				
MPE3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again. [Q# 11]				

Closest to Game Cards



$2\frac{1}{2}$	$1\frac{3}{8}$	$3\frac{3}{4}$	$2\frac{1}{3}$
$1\frac{2}{3}$	$2\frac{1}{7}$	$3\frac{1}{8}$	$2\frac{2}{12}$
$3\frac{3}{20}$	$1\frac{2}{5}$	$2\frac{5}{11}$	$3\frac{9}{12}$
$1\frac{6}{8}$	$3\frac{3}{16}$	$3\frac{1}{10}$	$3\frac{4}{12}$
$1\frac{5}{9}$	$3\frac{1}{2}$	$2\frac{3}{5}$	$2\frac{5}{8}$

Closest to Recording Sheet

Each problem will be $4\frac{1}{4}$ minus the fraction on your game card.

Number Sentence	Closest to 0, 1, 2, 3	Points
$4\frac{1}{4} -$		
$4\frac{1}{4} -$		
$4\frac{1}{4} -$		
$4\frac{1}{4} -$		
$4\frac{1}{4} -$		
$4\frac{1}{4} -$		
$4\frac{1}{4} -$		
$4\frac{1}{4} -$		
$4\frac{1}{4} -$		

Copyright © Kendall Hunt Publishing Company

Total Points _____

Peanut Butter Cookie Recipe

Peanut Butter Cookies

Makes One Dozen

- $1\frac{1}{2}$ cup peanut butter
- $\frac{3}{4}$ cup sugar
- $\frac{1}{2}$ teaspoon vanilla
- 1 egg

Mix the ingredients together. Drop by spoonful onto an ungreased cookie sheet. Bake for 7-9 minutes in a 350 degree oven.

Turkey and Potatoes

- Use models, drawings, number lines, mental math, or paper and pencil to solve the problems.
 - $\frac{3}{5} \times 10 =$ _____
 - $\frac{4}{7} \times 5 =$ _____
 - $9 \times \frac{2}{3} =$ _____
- Show or tell how to solve $\frac{2}{5} \times 3$ using fraction circle pieces, a drawing, or a number line. Include a number sentence.
- This mashed potatoes recipe serves 4. Change it so that it will serve 16. Include number sentences. Write your answers in simplest form. Do not leave any improper fractions.

Mashed Potatoes

Original Recipe Serves <u>4</u>	Revised Recipe Serves <u>16</u>
$1\frac{1}{2}$ pounds of potatoes	
$\frac{2}{3}$ teaspoon of salt	
$\frac{1}{4}$ cup of cream	
$\frac{1}{8}$ cup of butter	

4. Luis’s mother is cooking a turkey. The turkey needs to cook $\frac{3}{4}$ of an hour for every pound it weighs.

A. Complete the table.

Turkey Cooking Time

Number of Pounds	Number of Hours
10	$10 \times \frac{3}{4} =$
11	$11 \times \frac{3}{4} =$
12	$12 \times \frac{3}{4} =$
13	$13 \times \frac{3}{4} =$
14	$14 \times \frac{3}{4} =$
15	$15 \times \frac{3}{4} =$

- B. How long does Luis’s mother need to cook a 12-pound turkey? Write your answer in simplest form. Do not leave any improper fractions.

- C. Solve $12 \times \frac{3}{4}$ another way to check your answer in Question 4B. Show your work. Include a number sentence.

Name _____ Date _____

**Turkey and Potatoes
Feedback Box**

	Expectation	Check In	Comments
Represent the simplest form of a fraction. [Q# 3, 4B]	E2		
Represent multiplication of fractions with area models, number lines, number sentences, and drawings. [Q# 2]	E3		
Multiply fractions using area models, drawings, and number lines. [Q# 1–4]	E4		
Solve word problems involving multiplication of fractions. [Q# 3–4]	E5		

Yes ...

Yes, but ...

No, but ...

No...

MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem [Q# 1–4]				
MPE4. Check My Calculations. If I make mistakes, I correct them.				
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.				

Name _____ Date _____

Solving Fraction Multiplication Problems

Check-In: Q# 19–21

Feedback Box

	Expectation	Check In	Comments
Represent multiplication of fractions with number sentences, drawings, and stories. [Q# 21]	E3		
Multiply fractions using area models, drawings, and paper and pencil. [Q# 19–21]	E4		
Solve word problems involving multiplication of fractions. [Q# 19–21]	E5		
Explain the effects of factors less than and greater than 1 on the product of fractions. [Q# 21A]	E6		
Choose appropriately from among estimation and computation strategies. [Q# 19–21]	E7		

Name _____ Date _____

	Yes ...	Yes, but ...	No, but ...	No ...
<p>MPE1. Know the problem. I read the problem carefully. I know the questions to answer and what information is important. [Q# 19–21]</p>				
<p>MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem. [Q# 19–21]</p>				
<p>MPE3. Check for reasonableness. I look back at my solution to see if my answer makes sense. If it does not, I try again. [Q# 21C]</p>				
<p>MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking. [Q# 19–21]</p>				
<p>MPE6. Use labels. I use labels to show what numbers mean. [Q# 19–21]</p>				

Name _____ Date _____

Divide Fractions

Check-In: Q# 15–16 Feedback Box

	Expectation	Check In	Comments
Represent division of fractions with drawings.	E3		
Divide fractions using area models, drawings, and number lines.	E4		
Solve word problems involving division of fractions.	E5		

	Yes ...	Yes, but ...	No, but ...	No ...
MPE1. Know the problem. I read the problem carefully. I know the questions to answer and what information is important.				
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem.				
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.				
MPE6. Use labels. I use labels to show what numbers mean.				

Multiply and Divide Fractions Quiz

1. Use any strategy to solve each problem. Show your work. Write the answers in simplest form. Do not leave any improper fractions.

A. $3 \times \frac{1}{4} =$

B. $\frac{3}{5} \times \frac{2}{3} =$

C. $5 \div \frac{1}{4} =$

D. $\frac{1}{2} \div 4 =$

2. A. Use area models like fraction circle pieces or a rectangle, number lines, number sentences, drawings, or a story to show what $6 \div \frac{1}{3}$ means.

B. Will the quotient of $6 \div \frac{1}{3}$ be greater than or less than 6? Why?

C. Solve $6 \div \frac{1}{3}$. Include a number sentence.

3. A. Use area models like fraction circle pieces or a rectangle, number lines, number sentences, drawings, or a story to show what $\frac{1}{3} \times 6$ means.

B. Will the product of $\frac{1}{3} \times 6$ be greater than or less than 6? Why?

C. Solve $\frac{1}{3} \times 6$. Include a number sentence.

4. Here is Grace's grandmother's biscuit recipe:



Grandma's Buttermilk Biscuits *Makes One Dozen*

- 2 cups flour
- $3\frac{1}{2}$ teaspoons baking powder
- $\frac{1}{4}$ teaspoons baking soda
- $\frac{3}{4}$ teaspoons salt
- 2 tablespoons butter
- 2 tablespoons shortening
- 1 cup of buttermilk, chilled

- A. There are 2 biscuits in one serving. What fraction of a dozen is one serving?
- B. How many cups of flour will Grace need to make $\frac{1}{3}$ of the recipe?
- C. Grace has a container with 13 teaspoons of baking powder. Does she have enough baking powder to make 4-dozen biscuits? How do you know?
- D. Find the number of teaspoons of salt that are in 4-dozen biscuits.

Name _____ Date _____

Multiply and Divide Fractions Feedback Box	Expectation	Check In	Comments
Represent and identify the simplest form of a fraction. [Q# 1]	E2		
Represent multiplication and division of fractions with area models, number sentences, number lines, drawings, and stories. [Q# 2A, 3A]	E3		
Multiply and divide fractions using area models, drawings, and number lines. [Q# 1, 2C, 3C, 4]	E4		
Solve word problems involving multiplication and division of fractions. [Q# 4]	E5		
Explain the effects of factors less than and greater than 1 on the product and quotient of fractions. [Q#2B, 3B]	E6		
Choose appropriately from among estimation and computation strategies. [Q# 4]	E7		
Find a strategy. I choose good tools and an efficient strategy for solving the problem. [Q# 1–4]	MPE2		