

LETTER HOME

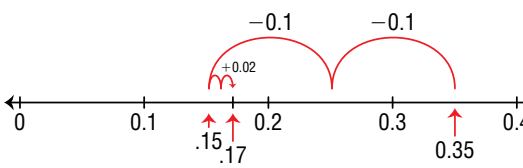
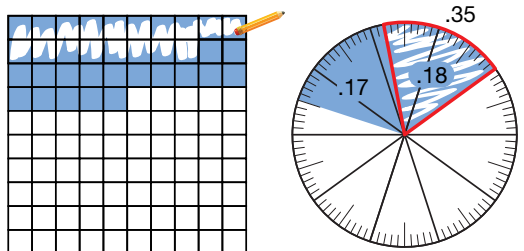
Decimals

Dear Family Member:

In this unit, students will work with decimals and develop strategies for adding, subtracting, multiplying and dividing with decimals. Students start by connecting decimals to their understanding of fractions and making connections among different representations. Research indicates that students with a foundational understanding of decimals can learn computational procedures and solve problems involving decimals more effectively (National Research Council, 2001).

Students will then use these representations, various contexts, and their understanding of place value to develop mental math and paper-and-pencil strategies for all the operations. For example, in Lesson 8, students develop a strategies menu for adding and subtracting decimals.

Subtracting Decimals

<p style="text-align: center;">Estimating</p> $0.35 - .18$ <div style="border: 1px solid black; border-radius: 50%; padding: 10px; width: fit-content; margin: 10px auto;"><p>.35 - .18 is close to 0.15 because .18 is almost 0.2. .35 - .2 = .15</p></div>	<p style="text-align: center;">Number Line or Counting Back</p> $0.35 - 0.18 = 0.17$  $0.35 - 0.1 - 0.1 + 0.02 = 0.17$				
<p style="text-align: center;">Using Models</p> $0.35 - 0.18 = .17$ 	<p style="text-align: center;">Using Paper and Pencil</p> <p style="text-align: center;">0.35 subtract 0.18</p> <table style="width: 100%;"><tr><td style="text-align: center;">Compact</td><td style="text-align: center;">Expanded Form</td></tr><tr><td style="text-align: center;">$\begin{array}{r} 2 \overline{)0.35} \\ -0.18 \\ \hline 0.17 \end{array}$</td><td style="text-align: center;">$\begin{array}{l} 0.35 = 0.3 + .05 = 0.2 + .15 \\ 0.18 = 0.1 + .08 = 0.1 + .08 \\ \hline 0.1 + .07 = 0.17 \end{array}$</td></tr></table>	Compact	Expanded Form	$\begin{array}{r} 2 \overline{)0.35} \\ -0.18 \\ \hline 0.17 \end{array}$	$\begin{array}{l} 0.35 = 0.3 + .05 = 0.2 + .15 \\ 0.18 = 0.1 + .08 = 0.1 + .08 \\ \hline 0.1 + .07 = 0.17 \end{array}$
Compact	Expanded Form				
$\begin{array}{r} 2 \overline{)0.35} \\ -0.18 \\ \hline 0.17 \end{array}$	$\begin{array}{l} 0.35 = 0.3 + .05 = 0.2 + .15 \\ 0.18 = 0.1 + .08 = 0.1 + .08 \\ \hline 0.1 + .07 = 0.17 \end{array}$				

You can help your child by providing additional mathematics opportunities at home. For example:

- **Measure.** Help you child measure the same distance in meters, centimeters, and millimeters.
- **Play *Start, Hop, Stop to Hundredths*.** Players use a spinner to determine moves on a number line. Directions, spinners, and game boards are in the *Student Activity Book*.
- **Use Different Strategies.** Ask you child to show you how to solve a problem using a mental math and a paper-and-pencil strategy. A student that uses a mental math strategy may draw a model or make some notes. These models encourage students to develop a visual model of numbers.

Math Facts and Mental Math

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

Multiplication Facts. Students review all the multiplication facts to maintain and increase fluency and to learn to apply multiplication strategies to larger numbers.

You can help your child review these facts using the flash cards that are sent home or by making a set of flash cards from index cards or scrap paper. Study facts in small groups each night and focus only on those facts that your child needs to learn. As your child goes through the flash cards, put the cards in three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

For Facts I Need to Learn, work on strategies for figuring them out. If there are many multiplication facts that your child still needs to learn, divide them into smaller groups of facts. Choose groups of facts that lend themselves to the use of the same strategy and focus on one group at a time.

For Facts I can Figure Out, use the flash cards to practice the facts for fluency.

For Facts I Know Quickly, help your child use mental math strategies to multiply 10s and 100s. You can also help your child extend and deepen understanding by asking him or her to choose a multiplication fact that was difficult to learn and describe strategies used for learning the fact.

Division Facts. Students review all the division facts to maintain and increase fluency and to learn and apply multiplication and division strategies to larger numbers.

You can help your child review these facts using the flash cards that are sent home or by making a set of flash cards from index cards or scrap paper. Study facts in small groups each night. As your child goes through the flash cards, put the cards into three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

For the Facts I Need to Learn, work on strategies for figuring them out. Good strategies include:

Turn-around facts. To solve $42 \div 6$: I know $6 \times 7 = 42$, so $42 \div 6 = 7$.

Reasoning from known facts. To solve $28 \div 4$: I know $28 \div 2 = 14$ so $28 \div 4$ is half of 14 or 7.

For Facts I Can Figure Out, use the flash cards to practice the facts for fluency.

For Facts I Know Quickly, help your child use mental math strategies to divide 10s and 100s:

$$320 \div 40 = 8; 4200 \div 700 = 6$$

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

Sincerely,

Unit 8: Home Practice

Part 1 Triangle Flash Cards: All the Facts

Study for the quiz on the multiplication and division facts. Take home your Triangle Flash Cards and your list of facts you need to study.

Ask a family member to choose one flash card at a time. To quiz you on a multiplication fact, he or she should cover the corner containing the highest number. (The highest number on each card is slightly shaded.) This number will be the answer to the multiplication fact. Multiply the two uncovered numbers.

To quiz you on a division fact, your family member can cover one of the unshaded numbers. Then use the two uncovered numbers to solve a division fact.

Ask your family member to mix up the multiplication and division facts. He or she should sometimes cover the highest number and sometimes cover one of the smaller numbers.

Your teacher will let you know when the quiz on the multiplication and division facts will be.

Part 2 Division Practice

A. $45 \div 9 = \underline{\quad}$

B. $4 \div 2 = \underline{\quad}$

C. $10 \div 5 = \underline{\quad}$

D. $9 \div 3 = \underline{\quad}$

E. $60 \div 6 = \underline{\quad}$

F. $25 \div 5 = \underline{\quad}$

G. $40 \div 5 = \underline{\quad}$

H. $36 \div 6 = \underline{\quad}$

I. $30 \div 10 = \underline{\quad}$

J. $8 \div 4 = \underline{\quad}$

K. $20 \div 4 = \underline{\quad}$

L. $12 \div 6 = \underline{\quad}$

M. $80 \div 8 = \underline{\quad}$

N. $14 \div 2 = \underline{\quad}$

O. $90 \div 10 = \underline{\quad}$

Part 3 Practicing Operations

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

A. $248 + 275 =$

B. $8202 - 775 =$

C. $26 \times 54 =$

D. $893 \times 5 =$

E. $9 \overline{)11,346}$

F. $3 \overline{)1748}$

Part 4 Fractions and Decimals

Fill in the chart. Write each number as a fraction and a decimal. The first one is done for you. Use your Hundredths Circle from Lesson 2 as a resource.

1. Fraction to Decimal

Fraction	Decimal
$\frac{1}{4}$.25
$\frac{98}{100}$	
$\frac{5}{100}$	
$\frac{16}{100}$	
$\frac{1}{2}$	
$\frac{2}{5}$	
$\frac{6}{20}$	

2. Decimal to Fraction

Fraction	Decimal
$\frac{20}{100}$.2
	1.05
	.01
	.75
	.07
	1.2
	.004

Part 5 Adding Fractions

A. $\frac{1}{2} + \frac{1}{4} =$

B. $\frac{1}{2} + \frac{3}{4} =$

C. $\frac{1}{2} + \frac{1}{3} =$

D. $\frac{1}{2} + \frac{2}{3} =$

E. $\frac{1}{3} + \frac{1}{4} =$

F. $\frac{2}{3} + \frac{3}{4} =$

Part 6 Reading, Writing, and Comparing Decimals

1. Write the following numbers as decimals and then put them in order from smallest to largest.

A. thirty-seven thousandths _____

B. two hundred forty-two and four-hundredths _____

C. one hundred nine and fourteen-thousands _____

D. six hundred sixteen-thousandths _____

E. _____

2. Write the following numbers in order from smallest to largest.

.9 $\frac{1}{2}$.06 0.1 $\frac{3}{4}$.25

3. Use $<$, $>$, or $=$ to make each number sentence true.

A. $\frac{3}{4}$ 0.75 B. .45 4.5 C. .246 .25

D. .5 $\frac{9}{18}$ E. $\frac{2}{3}$ 0.9 F. .80 $\frac{4}{5}$

Part 7 Order of Operations

Solve the following problems following the order of operations. Use paper and pencil or mental math.

A. $18 \div 3 \times 7 =$

B. $15 + 24 + 4 =$

C. $350 - 210 \div 7 =$

D. $60 + 80 \times 7 =$

E. $7^2 \times 2^2 =$

F. $30 \times 80 \div 6 =$

G. $60 \times 80 + 1200 =$

H. $4500 \div 9 - 5 =$

I. $(130 + 150) \div 4 =$

Part 8 Function Machines

Use the rule that is given to complete each function machine.

Input N	Output $(N + 2) \times 3$
1	9
2	
	21
6	
9	
	30
12	
13	

Input N	Output $(N \times 3) + 2$
1	5
2	
	14
7	
10	
	38
15	
20	

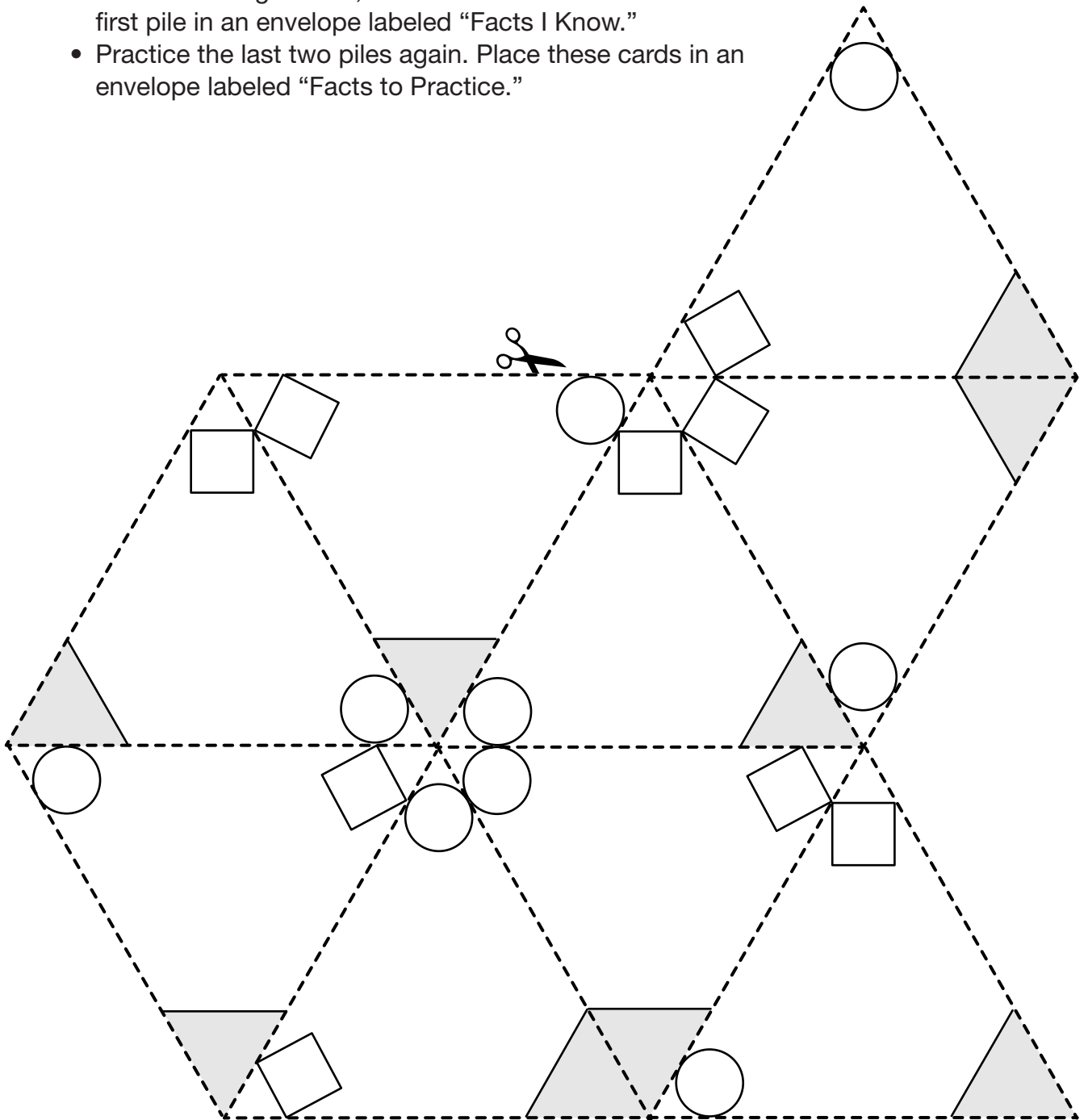
Part 9 The Swim Meet

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 only need 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.

- Shannon is on the swim team. She swam the backstroke in 7 meets. Her times for each race were 53.19 seconds, 49.67 seconds, 47.30 seconds, 43.86 seconds, 46.07 seconds, 45.87 seconds, and 45.91 seconds. What was Shannon's average speed for the backstroke during these meets? (Use the median.)
- A four-person team is needed to swim the medley relay. Each team member swims 50 meters using a different stroke. During one relay, Lin swam 50 meters using the butterfly stroke in 59.53 seconds, Shannon swam the backstroke in 46.12 seconds, Blanca swam the breaststroke in 53.27 seconds, and Grace finished with the freestyle stroke in 36.41 seconds.
 - How many minutes and seconds did it take the team to complete the entire relay?
 - What is the total distance that the relay team swam?
- During the first swim meet of the season, Frank swam the 50-meter breaststroke event in 57.62 seconds. During the final meet of the season, he swam the 50-meter breaststroke in 44.51 seconds. How many seconds faster did Frank swim the 50-meter breaststroke at the end of the season than the beginning?
- During one swim meet Edward swam in 5 different events. He swam the 100-meter individual medley in 1 minute 38.30 seconds, the 50-meter butterfly in 42.48 seconds, the 50-meter breaststroke in 44.80 seconds, the 50-meter freestyle in 32.83 seconds, and the 50-meter backstroke in 45.87 seconds.
 - How many meters did he swim during this meet?
 - About how many minutes did Edward spend swimming during this meet?
- The final swim meet of the season began at 8:30 AM. It ended at 4:45 PM. How long was the swim meet?
- Parents held a bake sale during each meet to raise money for the team. During one meet, the parents sold cupcakes for \$.25 each. They sold 42 cupcakes. How much money did they get for the cupcakes?
- The ribbons for the winners cost \$.08 each. During the swim season the team used 648 ribbons. How much did the team spend on the ribbons for this season?

Blank Triangle Flash Cards

- Work with a partner. Each partner cuts out the flash cards.
- To quiz you on a multiplication fact, your partner covers the shaded number. Multiply the two uncovered numbers.
- To quiz you on a division fact, your partner covers the number in the square or the number in the circle. Solve a division fact with the two uncovered numbers.
- Divide the used cards into three piles: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn. Place the first pile in an envelope labeled "Facts I Know."
- Practice the last two piles again. Place these cards in an envelope labeled "Facts to Practice."



Multiplication Facts I Know

- Circle the facts you know well.
- Keep this table and use it to help you multiply.
- As you learn more facts, you may circle them too.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

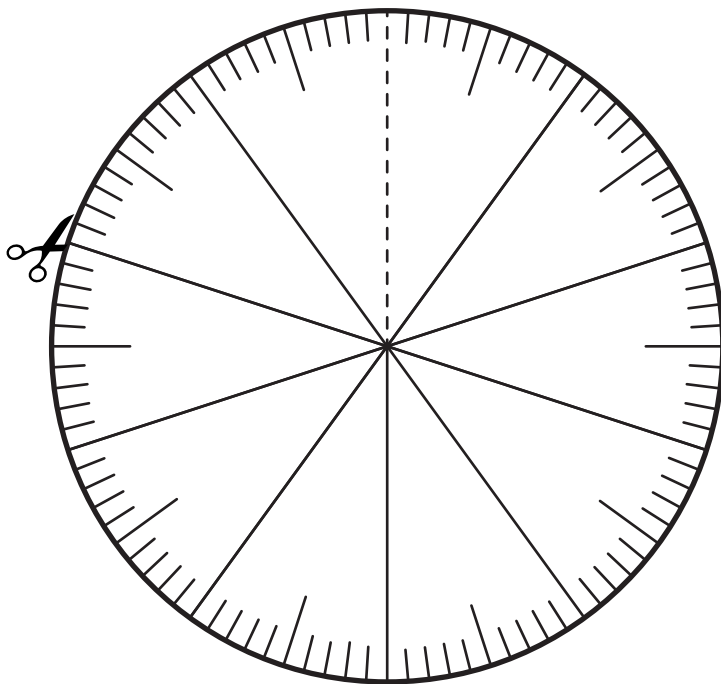
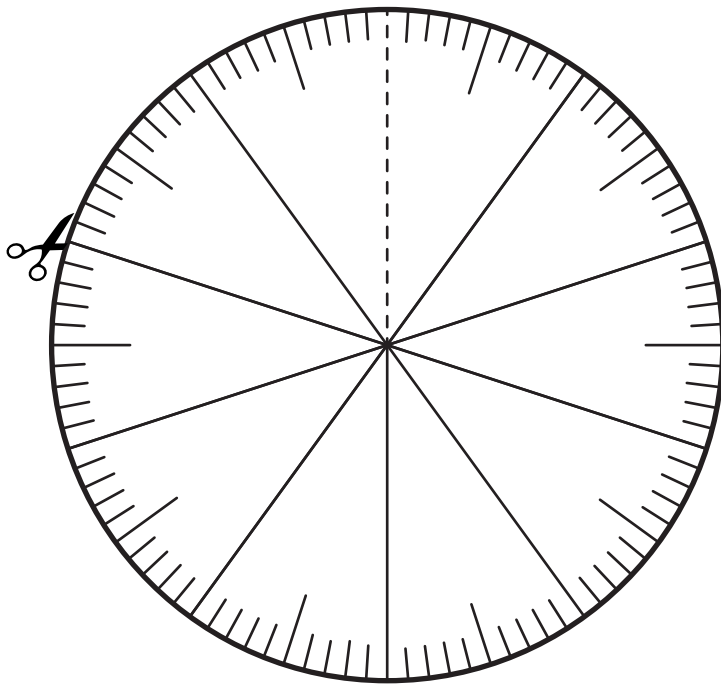
Division Facts I Know

- Circle the facts you know well.
- Keep this table and use it to help you divide.
- As you learn more facts, you may circle them too.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Divisor

Large Hundredths Circles



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Good Sports

Volleyball is more popular. I love volleyball and all the kids in my class like volleyball more than soccer.

No, soccer is more popular. I love soccer and all the kids that I know agree that soccer is the best sport.



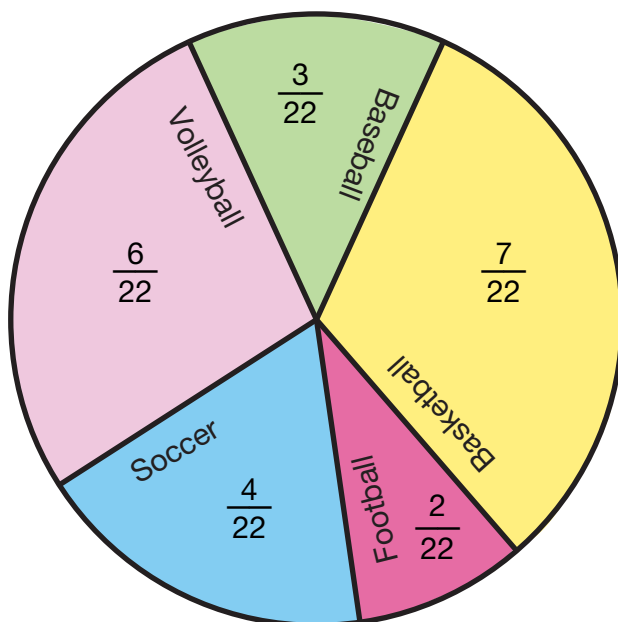
Favorite Sport
Lee Yah's School

Team Sport	<i>N</i> Number of Students
baseball	3
basketball	7
football	2
soccer	4
volleyball	6

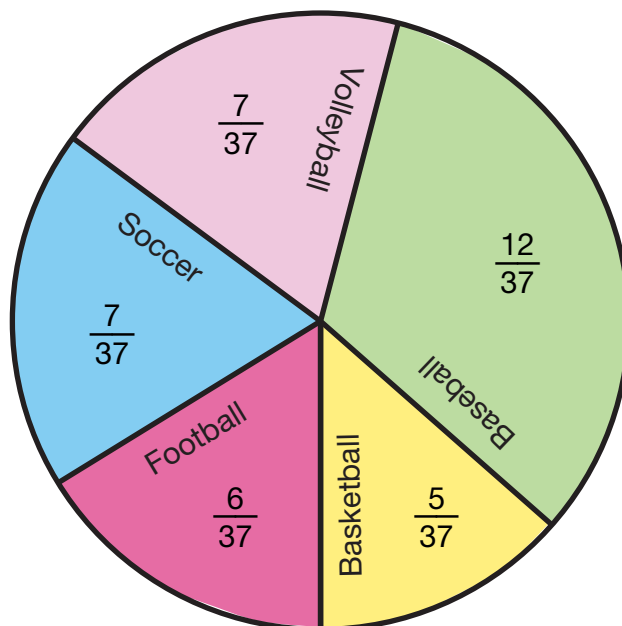
Favorite Sport
Janet's School

Team Sport	<i>N</i> Number of Students
baseball	12
basketball	5
football	6
soccer	7
volleyball	7

Lee Yah's Data: 22 kids



Janet's Data: 37 kids



Number Lines 0–1

open



tenth



hundredths



Decimal Number Lines Display



Name _____

Date _____

Decimal Place Value Chart

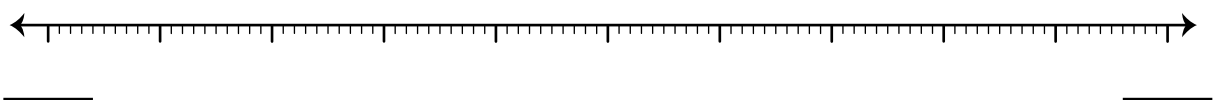
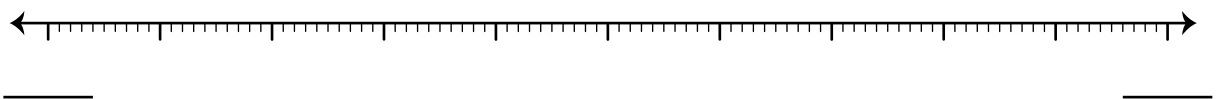
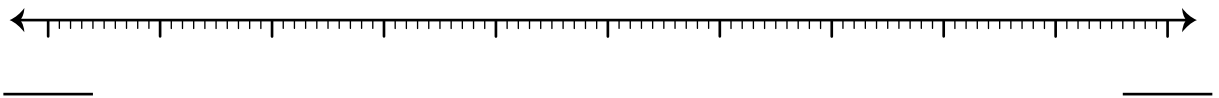
<i>millions</i>	<i>hundred thousands</i>	<i>ten thousands</i>	<i>thousands</i>	<i>hundreds</i>	<i>tens</i>	<i>ones</i>	.	<i>tenths</i>	<i>hundredths</i>	<i>thousandths</i>	<i>ten-thousandths</i>	<i>hundred-thousandths</i>	<i>millionths</i>
							.						
							.						
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Name _____

Date _____

Decimal Number Lines

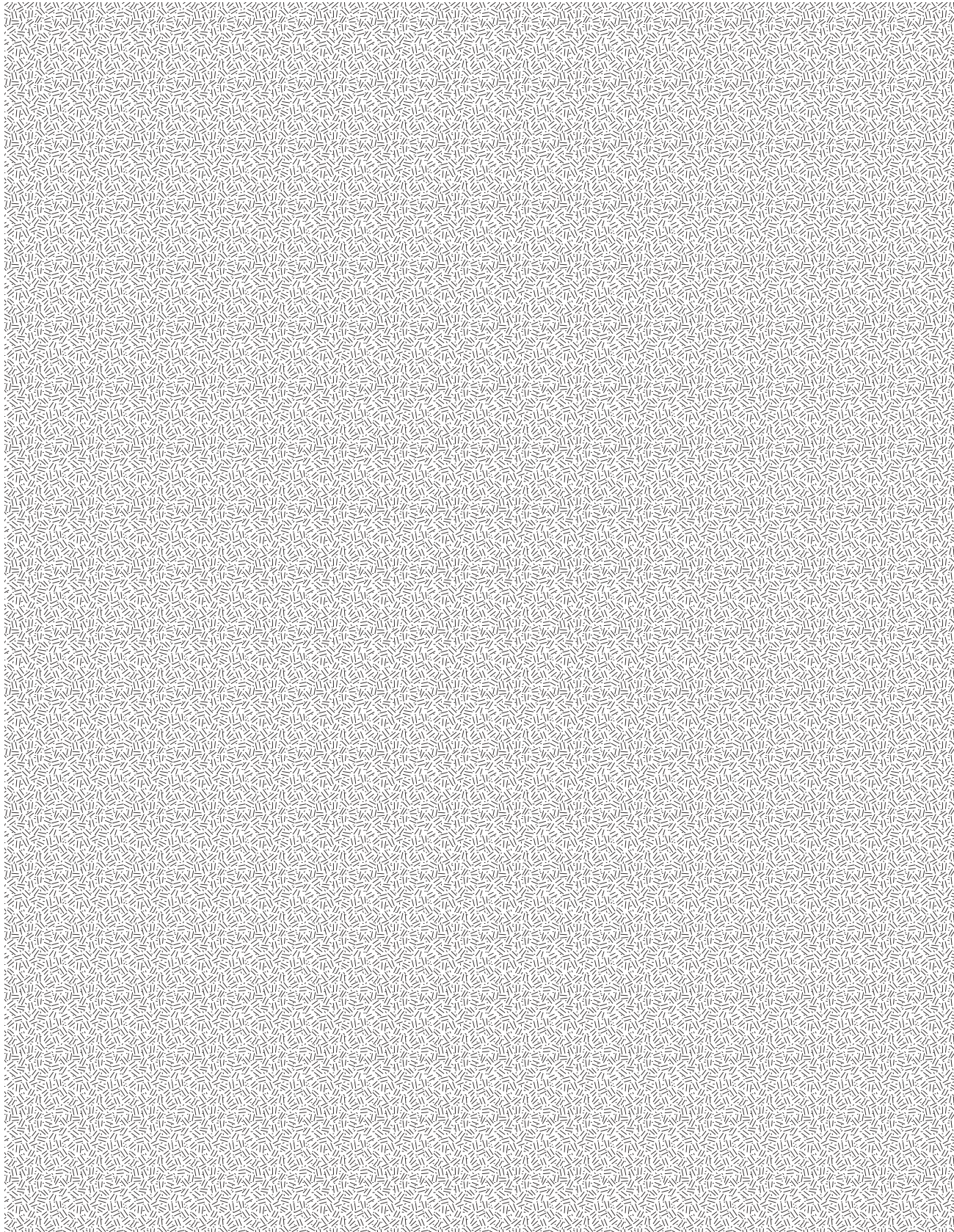


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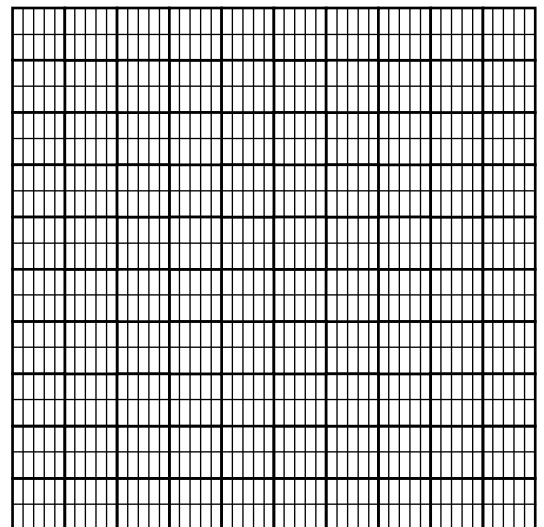
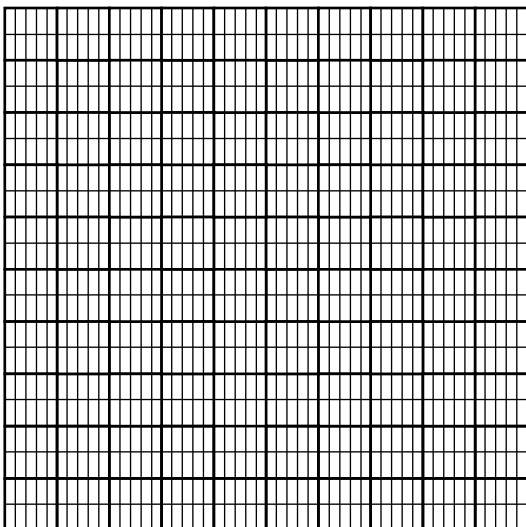
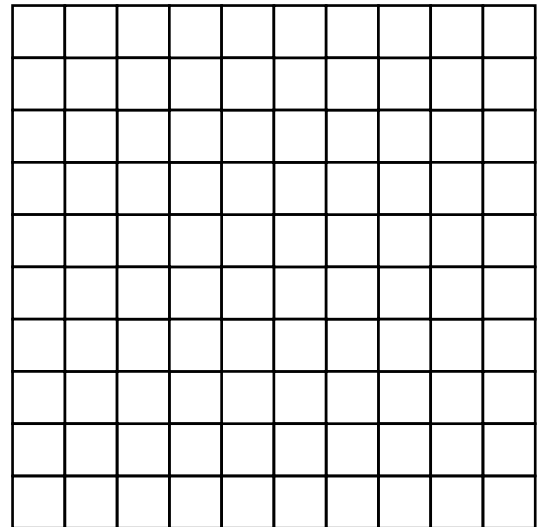
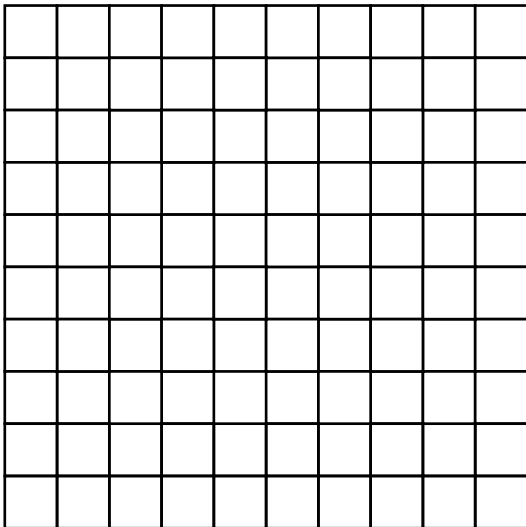
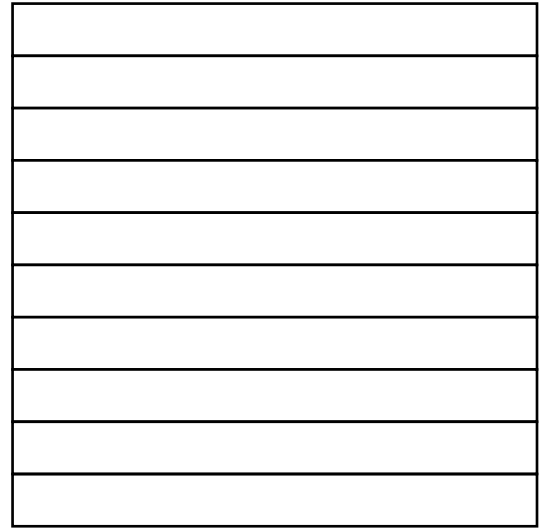
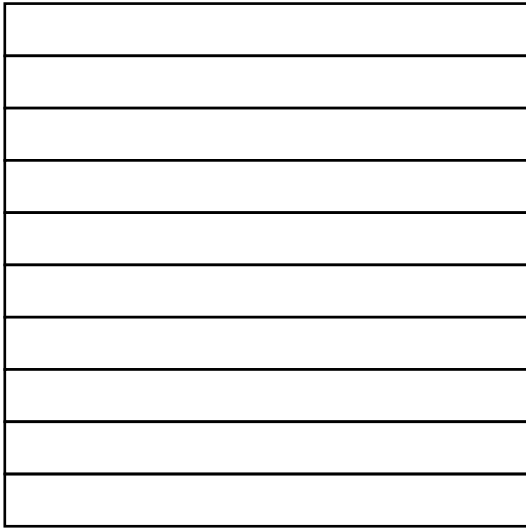
Digit Cards 0-9

5	0
6	1
7	2
8	3
9	4

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Decimal Grids



Represent and Compare Decimals Quiz

1. Complete the table to show ways to represent decimals. The first one is done for you.

	Decimal	Fraction	Words	Expanded Form
Ex.	0.356	$\frac{356}{1000}$	three hundred fifty-six thousandths	$.3 + .05 + .006 = .356$
A.			twenty-seven hundredths	
B.	0.065			
C.			one and seven tenths	
D.				$.4 + .05 + .008 = .458$
E.		$\frac{63}{100}$		

- 2 Use $<$, $>$, or $=$ to make each number sentence true.

A. $0.5 \bigcirc 0.475$

B. $.094 \bigcirc .1$

C. $.2 \bigcirc 0.200$

D. $0.37 \bigcirc .6$

3. Write these numbers in order from smallest to largest.

.08

0.69

.632

0.582

.009

.074

4. Luis wrote this number sentence:

$$.087 > .4$$

Do you agree with Luis? Explain your thinking.

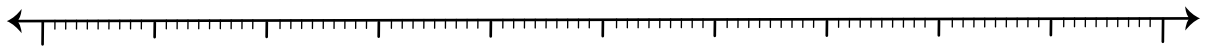
Use what you know about place value and the decimal number lines to complete Questions 5–7.

5. Round each decimal to the nearest whole number.

A. 29.84 _____ **B.** .923 _____

C. 12.001 _____ **D.** 32.632 _____

E. Show or tell how you solved Question 5B.

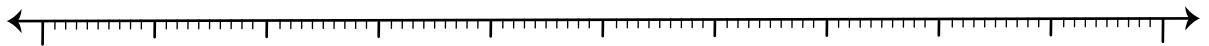


6. Round each decimal to the nearest tenth.

A. 29.84 _____ **B.** .923 _____

C. 12.001 _____ **D.** 32.632 _____

E. Show or tell how you solved Question 6C.

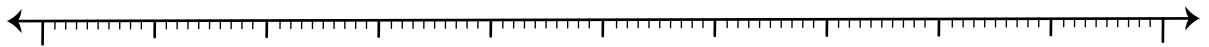


7. Round each decimal to the nearest hundredth.

A. 2.984 _____ **B.** .916 _____

C. 12.009 _____ **D.** 16.097 _____

E. Show or tell how you solved Question 7D.



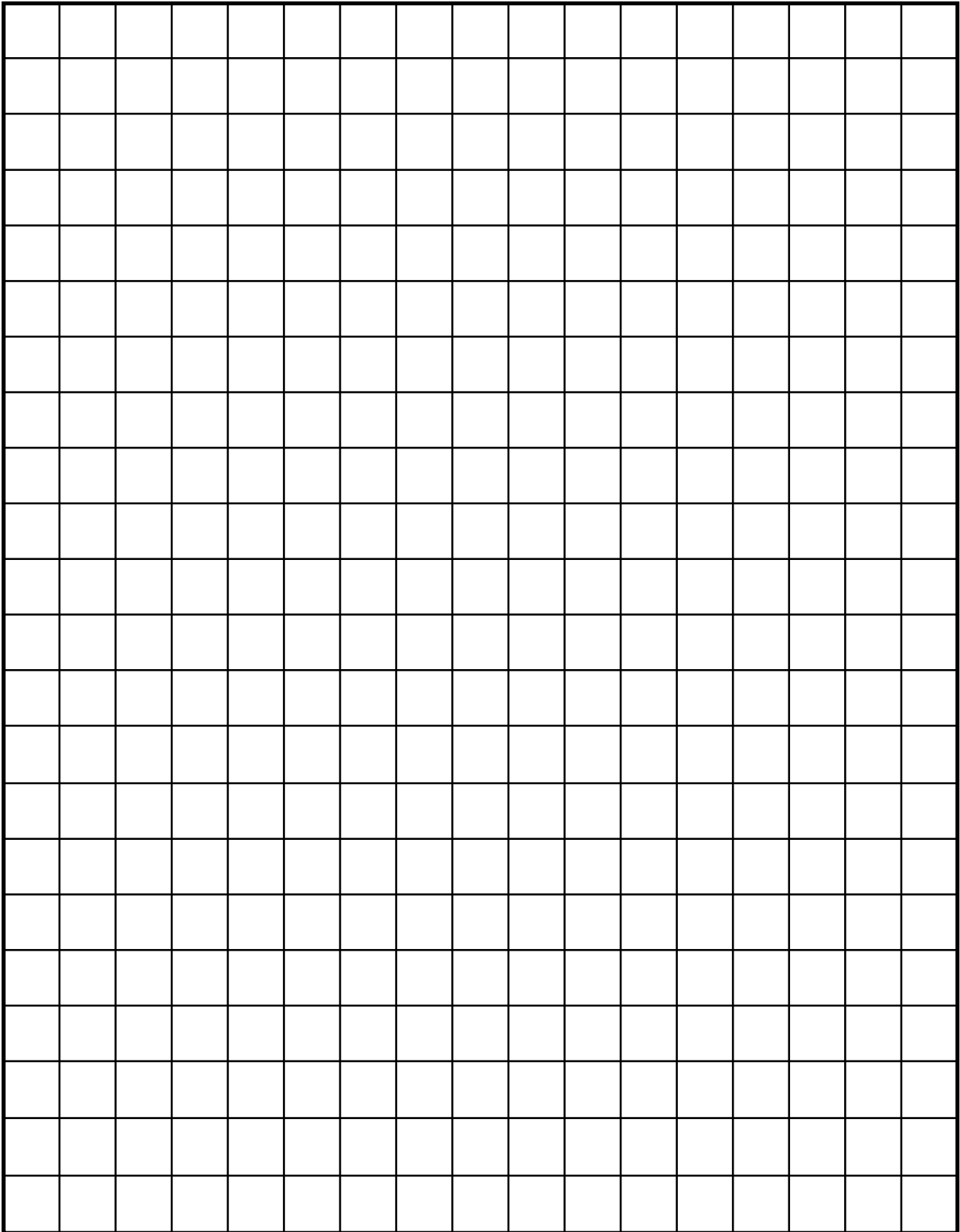
Fraction Cards

$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{5}$	$\frac{3}{10}$
$\frac{4}{5}$	$\frac{20}{100}$	$\frac{6}{6}$	$\frac{7}{14}$
$\frac{1}{4}$	$\frac{0}{12}$	$\frac{99}{100}$	$\frac{30}{100}$
$\frac{6}{10}$	$\frac{379}{1000}$	$\frac{1}{10}$	$\frac{4}{100}$
$\frac{7}{10}$	$\frac{500}{1000}$	$\frac{6}{5}$	$\frac{400}{1000}$

Name _____ Date _____

Life Span Feedback Box

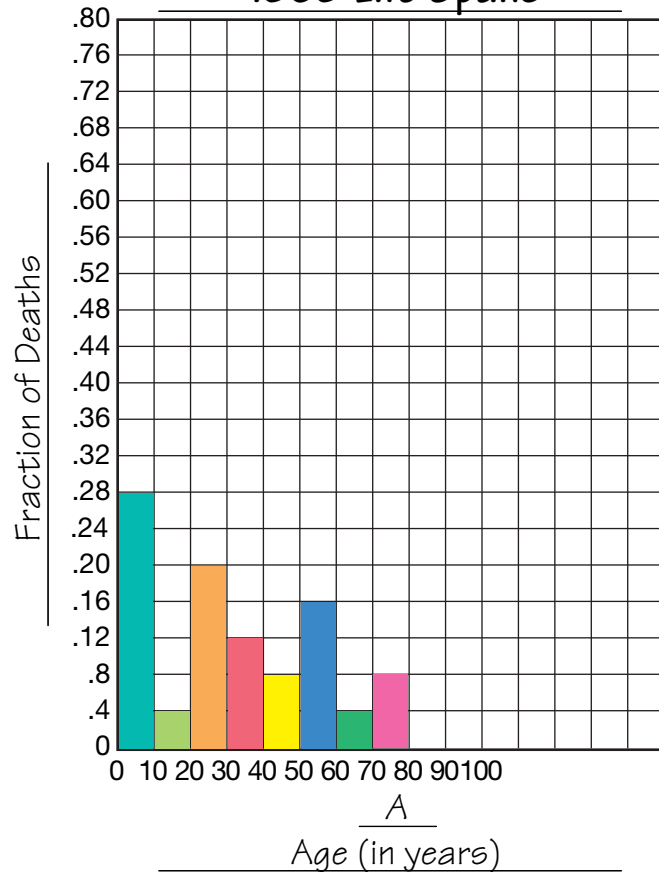
	Expectation	Check In	Comments
Represent numbers to the hundredth using fractions and decimals. [Q# 5–6]	E1		
Compare decimals to the hundredths using place value understanding and benchmarks. [Q# 7–10]	E3		
Estimate sums involving decimals and fractions. [Q# 11–16]	E9		
Use data tables to organize and display data involving decimals. [Q# 5–6]	E10		
Use graphs to organize and display data involving decimals. [Q# 17]	E10		
Describe a data set by interpreting a data table. [Q# 7–16]	E11		
Describe a data set by interpreting a graph. [Q# 18]	E11		
Describe a data set by finding the median. [Q# 19–20]	E11		
Use relationships and patterns in a data set to make claims and predictions. [Q# 21]	E12		



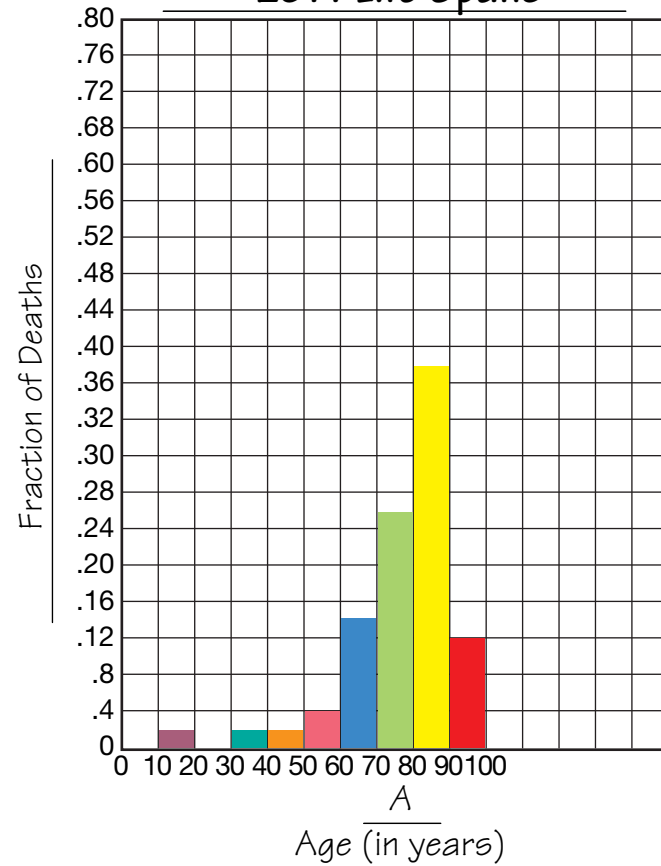
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Graphing Life Spans

1858 Life Spans



2014 Life Spans



Name _____ Date _____

Live Soap Bubbles Feedback Box

	Expectation	Check In	Comments
Represent numbers to the hundredth using fractions and decimals. [Q# 8]	E1		
Use data tables to organize and display data involving decimals. [Q# 8]	E10		
Use graphs to organize and display data involving decimals. [Q# 9]	E10		
Describe a data set by interpreting a data table. [Q# 10–12]	E11		
Describe a data set by interpreting a graph. [Q# 10–12]	E11		
Use relationships and patterns in a data set to make claims and predictions. [Q# 10–12]	E12		

Yes ...

Yes, but ...

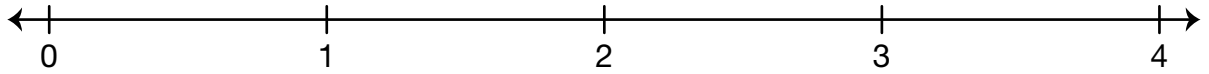
No, but ...

No ...

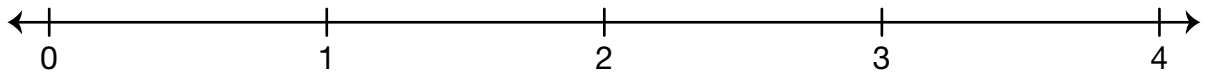
<p>MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking.</p>			
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Number Line Patterns 1

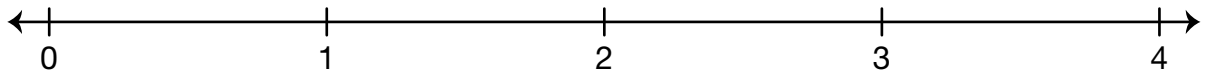
0.5, 1.0, 1.5, 2.0, 2.5, _____, _____, _____



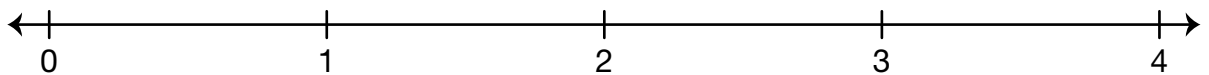
1.2, 1.5, 1.8, 2.1, 2.4, _____, _____, _____



0.3, 0.6, 0.9, 1.2, _____, _____, _____

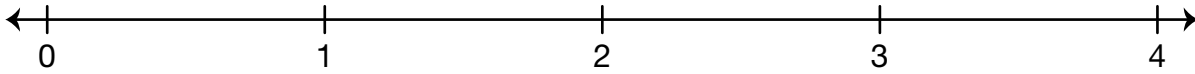


0.4, 0.8, 1.2, _____, _____, _____

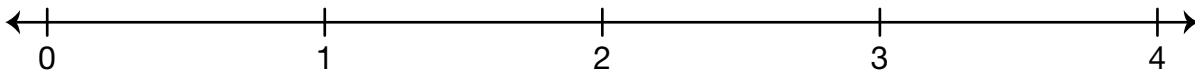


Number Line Patterns 2

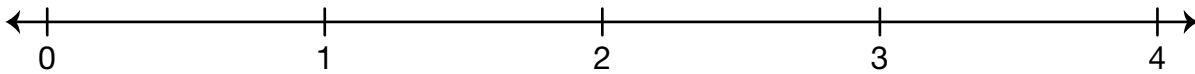
3.5, 3.0, 2.5, 2.0, _____, _____, _____



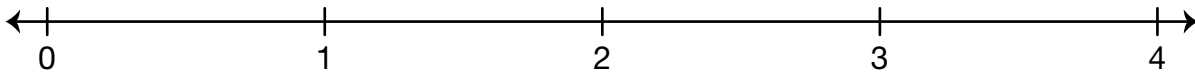
3.3, 3.0, 2.7, 2.4, 2.1 _____, _____, _____



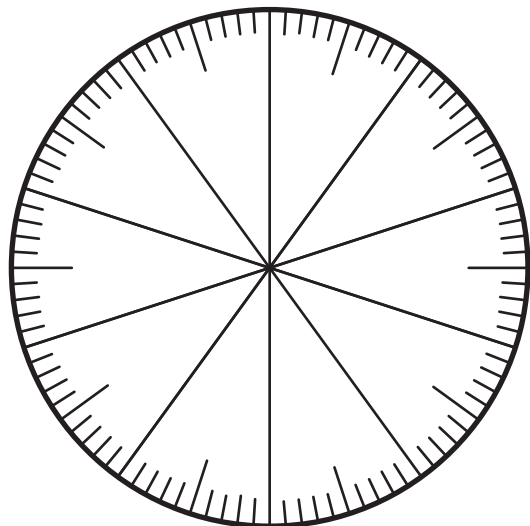
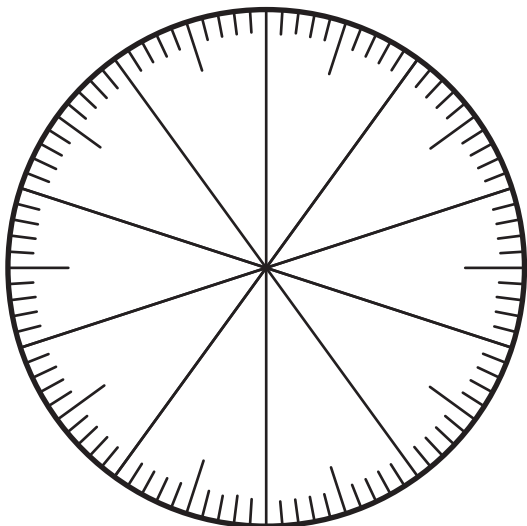
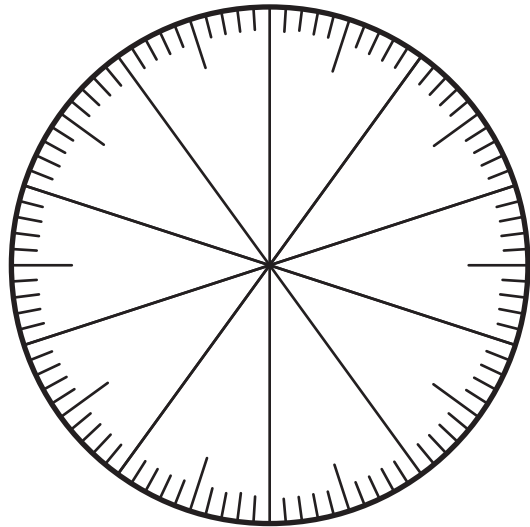
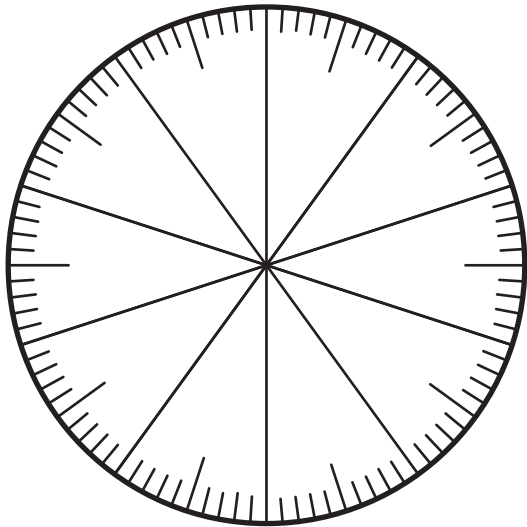
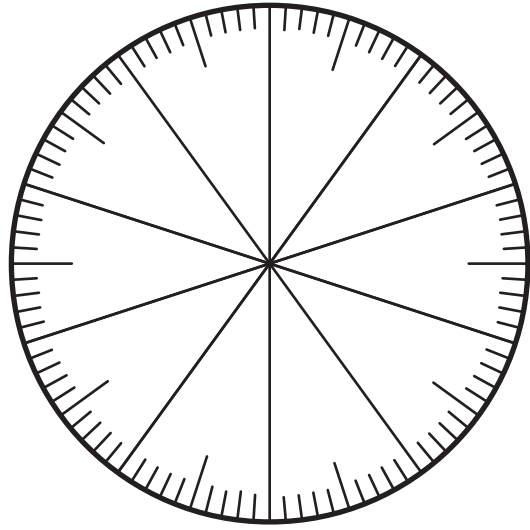
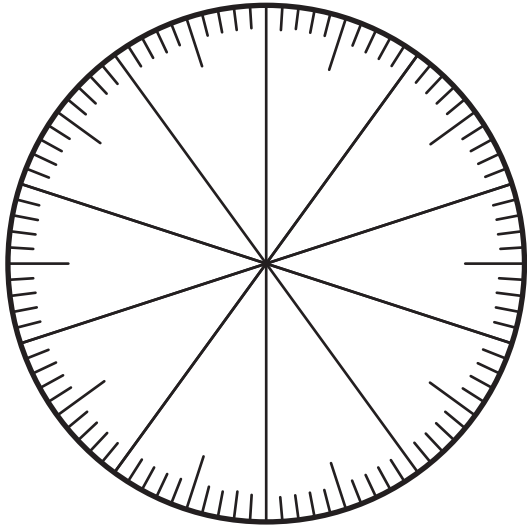
2.1, 1.8, 1.5, 1.2, _____, _____, _____



2.4, 2.0, 1.6, _____, _____, _____



Hundredths Circles





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Name _____ Date _____

Start, Hop, Stop to Hundredths Game Board

Turn #	Start	Stop	Number of Hops	Number Sentence
1.				
Turn #	Start	Stop	Number of Hops	Number Sentence
2.				

Name _____ Date _____

Turn #	Start	Stop	Number of Hops	Number Sentence
3.				
				
Turn #	Start	Stop	Number of Hops	Number Sentence
4.				
				

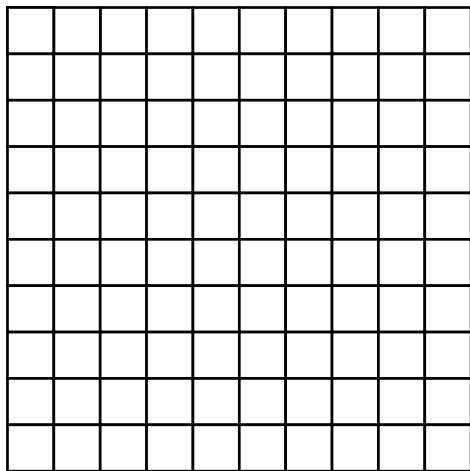
Total Number of Hops for Turns 1–4: _____

Add and Subtract Decimals with Models and Strategies

1. On Monday, Tanya ran 0.3 of a mile at school and 0.65 of a mile at soccer practice.

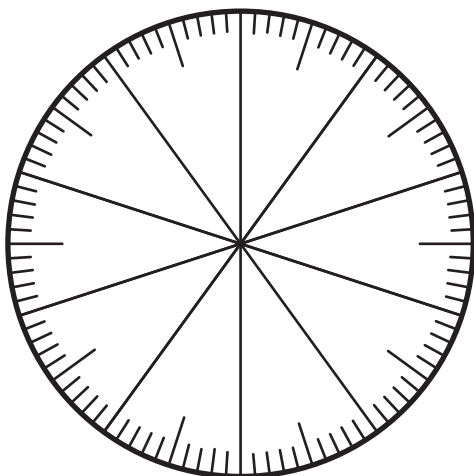
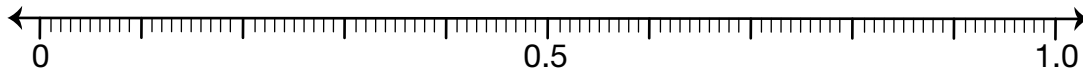
A. Did she run more or less than one mile? How do you know?

B. How far did Tanya run on Monday? Show how to use a hundredths grid to solve the problem.



Number sentence _____

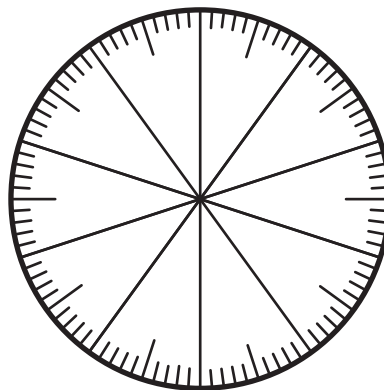
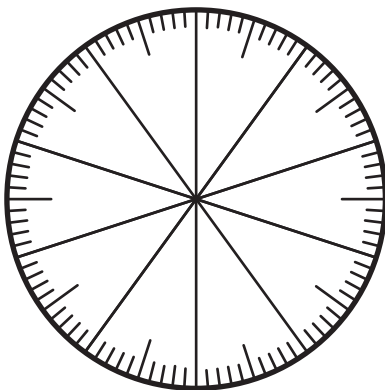
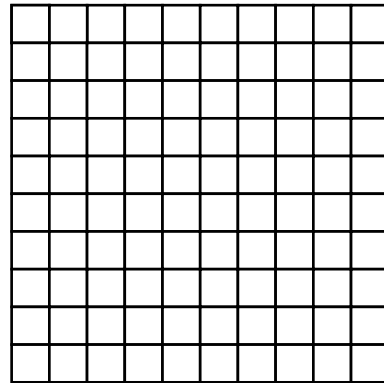
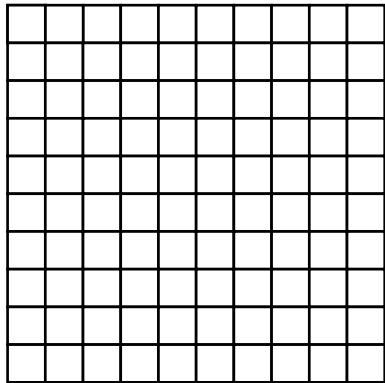
C. Show how to solve the problem another way using base-ten shorthand, a number line, or the hundredths circle. Choose one way.



2. Nila wants to run a total of 1.5 miles today. She ran 0.7 of a mile before breakfast. How many more miles does she need to run?

A. Explain how to estimate the difference.

B. Show how to use a hundredths grid, base-ten shorthand, or the hundredths circle to solve the problem. Choose one way.



Number sentence _____

C. How do you know your answer in Question 2B is reasonable?

Name _____ Date _____

**Add and Subtract Decimals
with Models and Strategies
Feedback Box**

	Expectation	Check In	Comments
Represent numbers to the hundredths using circle pieces, grid models, base-ten pieces, number lines, and symbols. [Q#1B–C, 2B]	E1		
Estimate decimal sums and differences. [Q#1A, 2A]	E9		
Add and subtract decimals using models and strategies. [Q#1B–C, 2B]	E7		

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# 1–2]				
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem. [Q# 1B–C, 2B]				
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# 2C]				
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking. [Q# 1–2]				
MPE6. Use labels. I use labels to show what numbers mean. [Q# 1B, 2B]				

Add and Subtract Decimals Quiz

1. Shannon and Roberto played the *Add or Subtract to 1 Game*.

A. Shannon made this problem:

$$.752 + .213$$

Show how to find
Shannon's sum:

B. Roberto made this problem:

$$6.49 - 5.51$$

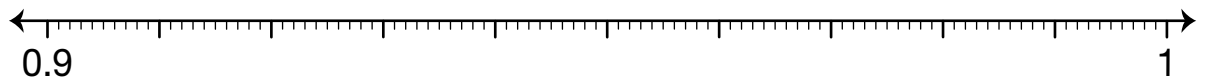
Show how to find Roberto's
difference:

Number sentence

Number sentence

C. Place both answers on the number line below.

Which number is closer to 1? _____



2. Jessie and Mark played the game, too.

A. Jessie made this problem:

$$2.86 - 1.79$$

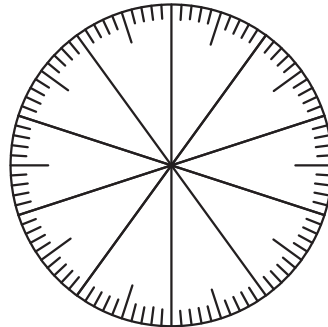
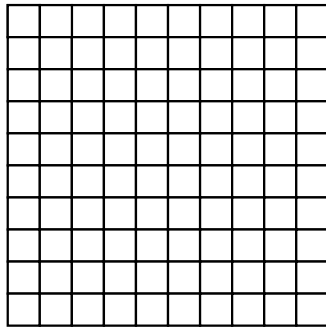
Show how to find
Jessie's difference:

B. Mark made this problem:

$$0.48 + 0.46$$

Show how to find Mark's sum:

C. Represent Mark's answer using a hundredths grid, hundredths circle, or base-ten shorthand. The flat is the unit whole. Choose one way.



D. Which number is closer to 1, Jessie's or Mark's ? _____
How do you know?

3. Frank made this problem:

$$\begin{array}{r} .911 \\ - .809 \\ \hline \end{array}$$

He estimated the difference to be about 1. Do you agree or disagree? Explain why.

Name _____ Date _____

**Add and Subtract Decimals Quiz
Feedback Box**

	Expectation	Check In	Comments
Represent numbers to the thousandths using decimals, area models, base-ten pieces, and number lines. [Q# 1C, 2C]	E1		
Compare decimals to the thousandths using place value understanding. [Q# 1C, 2D]	E3		
Add and subtract decimals to the thousandths using models and strategies. [Q# 1A–B, 2A–B]	E7		
Estimate decimal differences. [Q# 3]	E9		

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# 1A–B, 2A–B]				

Spin and Read Decimals Game

This is a game for two people. The object of the game is to end with the largest sum.

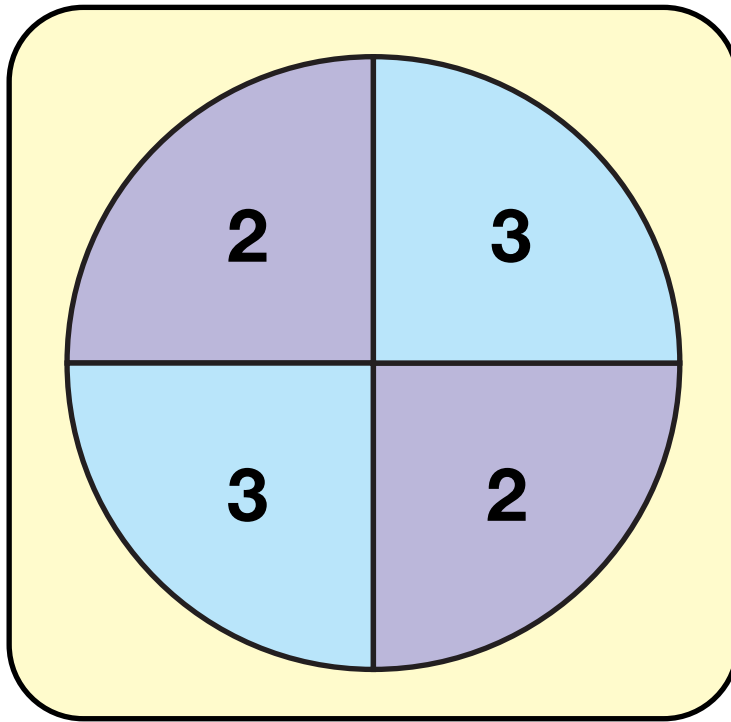
Materials

- three sets of Digit Cards 0–9, or one deck of playing cards (use the ace as “1”, the king as “0”, and remove the queens, jacks, and tens)
- Spin and Read Decimals Game Spinners
- Spin and Read Decimals Game Boards, 1 per player
- clear plastic spinner or a paper clip and pencil
- calculator, 1 per player
- coin

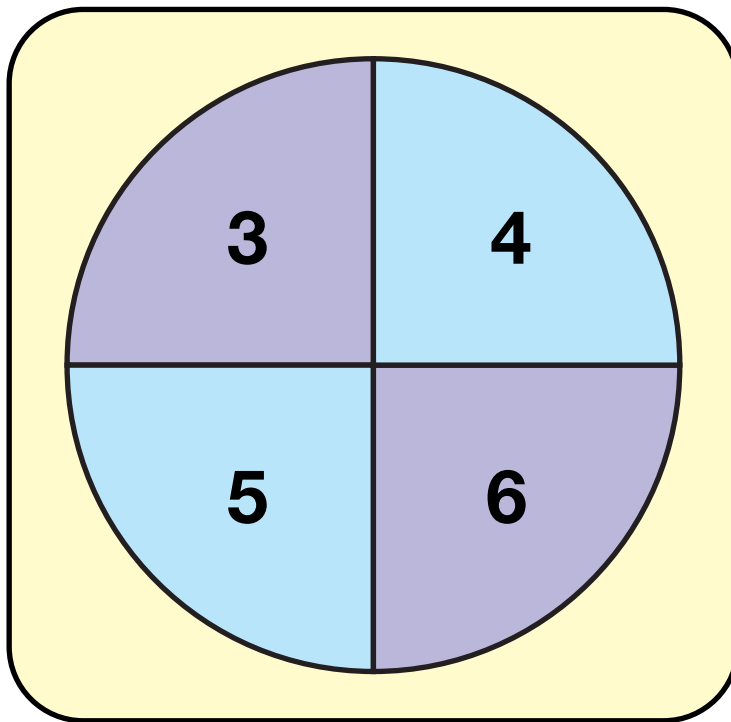
Directions

1. Shuffle the digit cards together to make one deck of 40 cards. Place these cards face down in the center of the table.
2. Use one of the spinners on the Spin and Read Decimals Game Spinners page to know the number of cards to pick up. (Use Spinner 1 the first few times you play the game, then use Spinner 2 for a greater challenge.)
3. The first player spins and draws the number of cards shown on the spinner. The player places these cards face-up on the table to make a number. He or she places the coin as a decimal point. That player then reads the number aloud.
 - If the number is read correctly, the player records the number on his or her Spin and Read Decimals Game Board, returns the cards to the deck, and reshuffles the cards.
 - If the number is not read correctly, the other player gets an opportunity to read the number, and if correct, writes it on his or her game board.
 - If neither player reads the number correctly, the cards go back into the deck and the deck is reshuffled.
 - It is the players' responsibility to determine whether or not the number was read correctly. If there is a dispute, it is resolved by a discussion of the number.
4. A game consists of four rounds with each player beginning two rounds.
5. At the end of the game, players add the numbers they recorded. The player with the largest sum wins.

Spin and Read Decimals Game Spinners



Spinner 1



Spinner 2

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Score One Game

The object of this game is to estimate the placement of decimals between 0 and 1 on a number line. This is a game for two players.

Materials

- two flat tooth picks
- Score One Game Board with number line and score board
- Decimal Scale

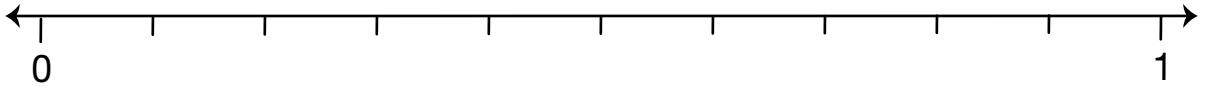
Directions

1. Each player makes a list of 20 numbers between zero and one that have values in the hundredths and are represented as decimals. For example: 0.43, 0.19, 0.75, 0.06, etc.
2. Cut out the Decimal Scale.
3. Player 1 selects a decimal from his or her prepared list and asks his or her partner to locate it on the number line.
4. Player 2 estimates the location of the decimal on the number line and marks it on the number line using the toothpick.
5. Player 1 checks the estimate using the decimal scale. If the estimate is within two hundredths of the actual location, Player 2 earns 0.1 point.
6. Play continues as Player 2 removes his or her toothpick and chooses a decimal from his or her list for Player 1.
7. The first player to earn 1.0 point is the winner.



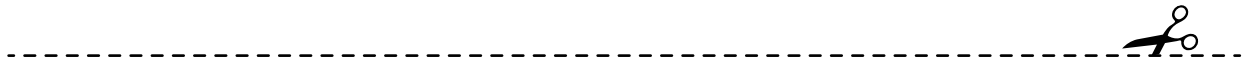
0.48 is close to 0.5 so it will be about half way between 0 and 1.

Score One Game Board

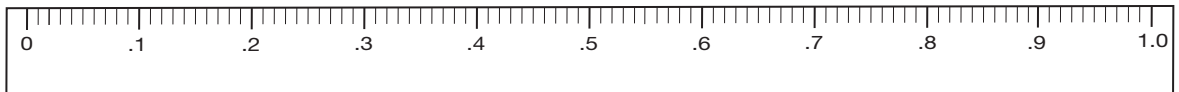


Score One Score Board

	Player One	Player Two
Total		



Decimal Scale



Decimal Order

The object of the game is to fill the game board by placing six decimals in order from smallest to largest. This game is for one to four players.

Materials

- Decimal Order Game Board for each player
- One set of Decimal Cards 1 and Decimal Cards 2 for two players. Mix the cards and place them face down between the players. Mix together two sets for 3 or 4 players.
- hundredths circle or thousandths grids

Directions

1. Players take turns. On your turn, draw a card from the pile and decide where to place it on your game board.
2. If you draw a card that you cannot place because of the numbers already on your board, keep the card and lose a turn.
3. If you draw a card with a decimal equivalent to one already placed on your game board, place the card to the right or left of the equivalent, if a space is open. If there is no space available, keep the card and lose a turn.
4. When one player fills his or her game board, all players use a hundredths circle or blank thousandths grid to check that the order is correct.
5. The winner is the player who correctly fills his or her game board first.

Variations

- Partners play with one game board and take turns placing cards on the game board. The winner is the player who fills the last space on the game board.
- Order the decimals from largest to smallest.
- Include cards with both common fractions and decimals.

Name _____ Date _____

Decimal Order Game Board

--	--	--	--	--	--

Smallest

Largest

Decimal Cards 1

0.33	0.1	0.6	0.125
0.67	0.5	0.20	0.05
0.450	.9	.100	.75
0.250	.754	.01	0.606
1.0	0.001	0.2	0.12

Decimal Cards 2

0.703	0.699	0.15	0.367
0.55	0.500	0.27	0.875
0.040	0.375	1.001	0.98
0.3	.010	0.8	0.17
0.27	0.004	0.579	0.975

Add or Subtract to 1 Game

This is a game for two players. The object is to have the most cards at the end of the game.

Materials

- 6 sets of digit cards 0–9
- Add or Subtract to 1 Game Board

Directions

1. Shuffle and deal out six cards to each player.
2. Each player uses the six cards to make an addition or subtraction problem.
3. Each player solves his or her problem.
4. The player whose answer is closest to 1 takes both player’s cards and put them aside.
5. Keep dealing six more cards to each player and making problems.
6. When all the cards are gone, the player who has collected the most cards wins.

Player 1
hundreds tens ones . tenths hundredths thousandths
7 . 4 7
6 . 4 5

Closer to 1

7.47

– 6.45

1.02

Player 2
hundreds tens ones . tenths hundredths thousandths
. 6 3 5
. 2 7 1

1

.635

+ .271

.906

Name _____ Date _____

Master

Add or Subtract to 1 Game Board

hundreds	tens	ones	.	tenths	hundredths	thousandths
			.			
			.			

Start, Hop, Stop to Hundredths

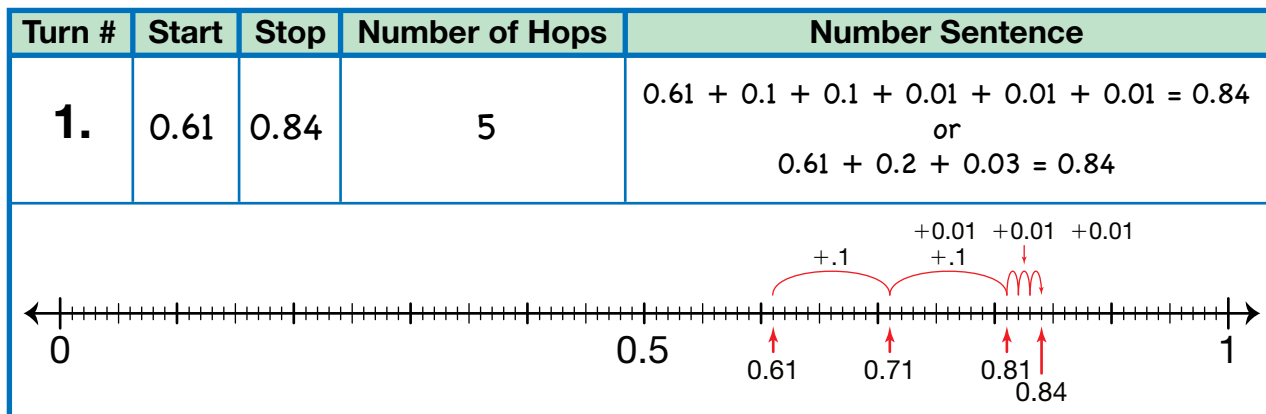
The object of the game is to move from the start point to the stop point with the fewest hops. This game is for two players.

Materials

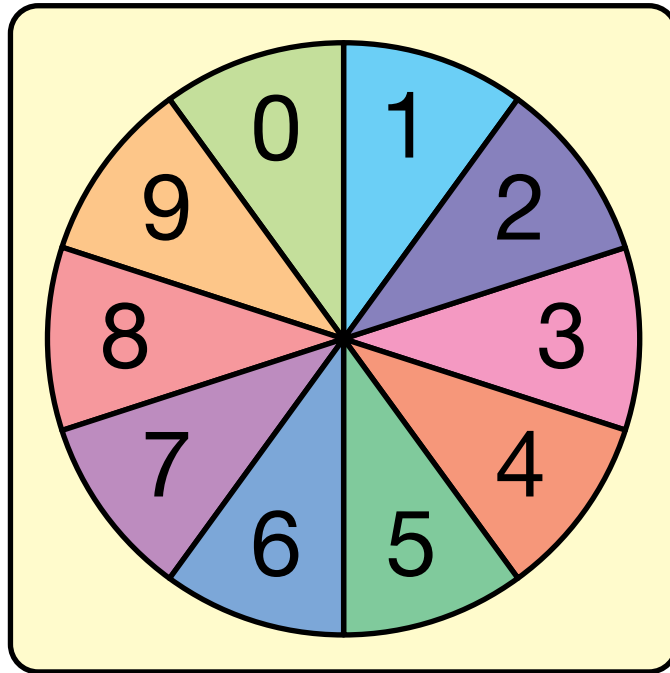
- Start, Hop, Stop to Hundredths Spinners
- Start, Hop, Stop to Hundredths Game Board
- clear plastic spinner or paper clip and pencil

Directions

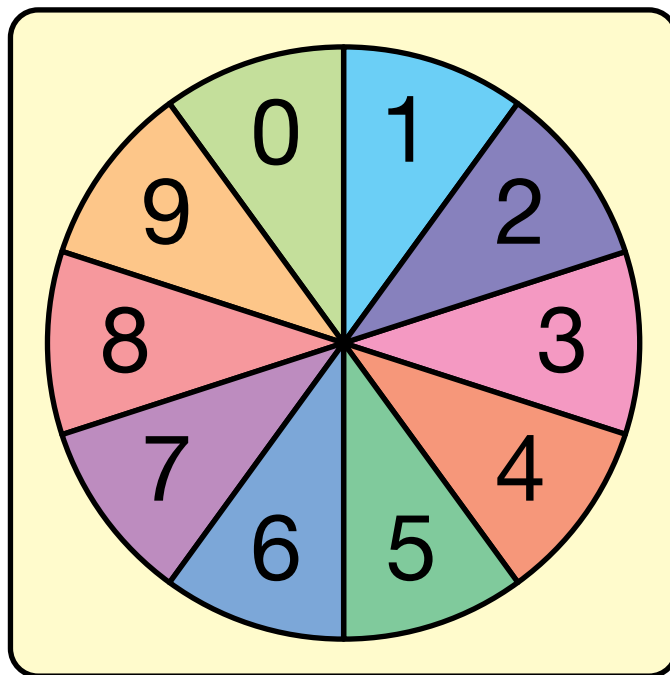
1. One player spins the Tenths Digit spinner and the Hundredths Digit spinner.
2. Players write the decimal number in the Start column of Turn #1 on their game pages.
3. The same player spins the Tenths Digit spinner and the Hundredths Digit spinner a second time.
4. Players record this decimal number in the Stop column on their game pages.
5. Each player finds a path from the start number to the stop number using as few hops as possible. Each hop must be 0.1 or 0.01. Hops can move right or left.
6. Each player records the following on the game page for each turn:
 - The start number and the stop number
 - A drawing of the hops on the number line
 - The total number of the player’s hops for that turn
 - A number sentence that shows the hops
7. Players check each other’s hops and number sentences.
8. Repeat the steps for each turn. Play continues for 4 turns. Alternate which player spins for each turn.
9. Each player adds the total number of hops for all 4 turns. The player with the fewest total hops is the winner.



Start, Hop, Stop to Hundredths Spinners



Tenths Digit



Hundredths Digit

Name _____ Date _____

Start, Hop, Stop to Hundredths Game Board

Turn #	Start	Stop	Number of Hops	Number Sentence
1.				
Turn #	Start	Stop	Number of Hops	Number Sentence
2.				

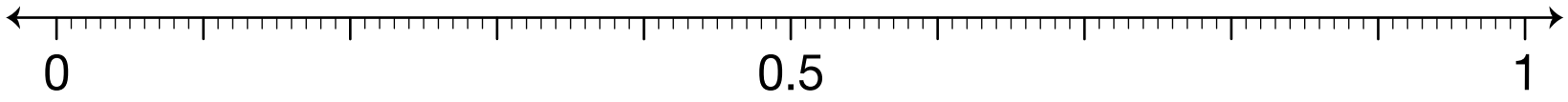
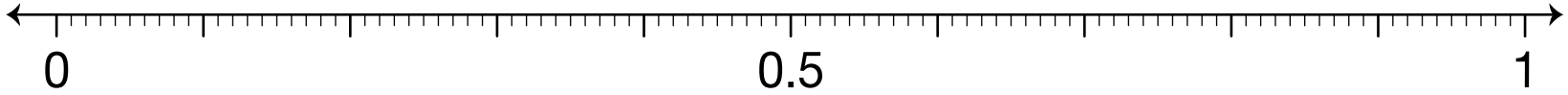
Date

Name

Name _____ Date _____

Master

Name

Turn #	Start	Stop	Number of Hops	Number Sentence
3.				
				
Turn #	Start	Stop	Number of Hops	Number Sentence
4.				
				

Date

Total Number of Hops for Turns 1-4: _____

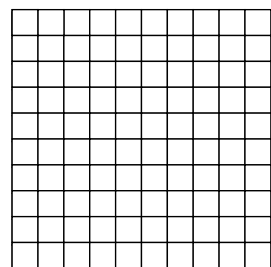
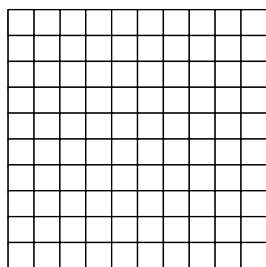
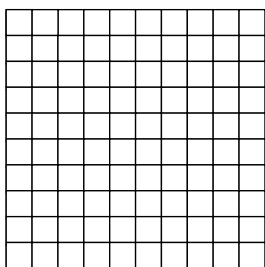
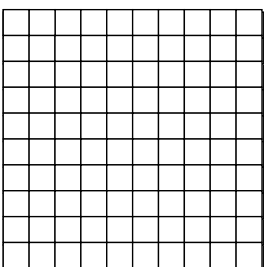
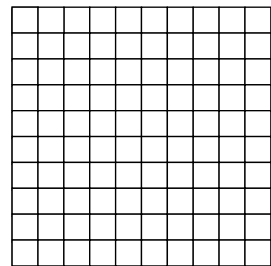
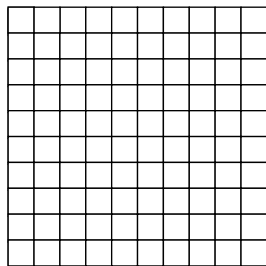
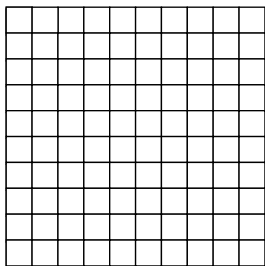
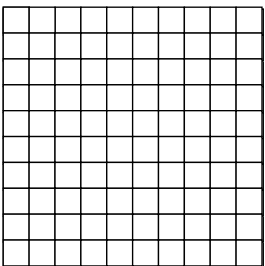
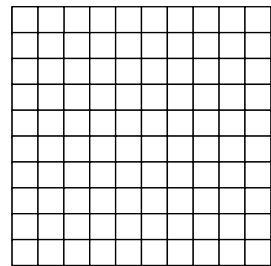
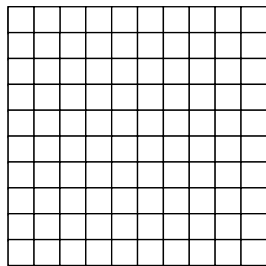
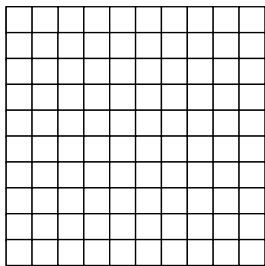
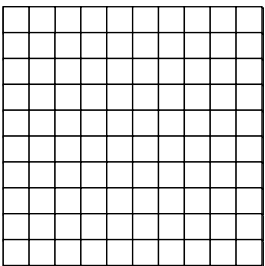
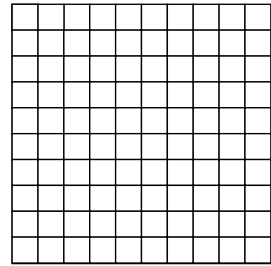
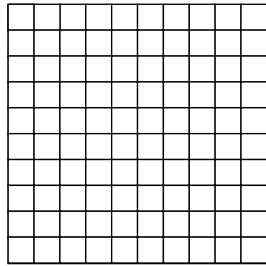
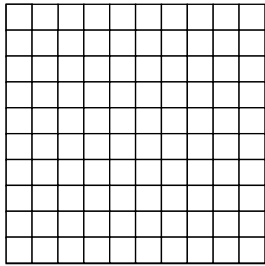
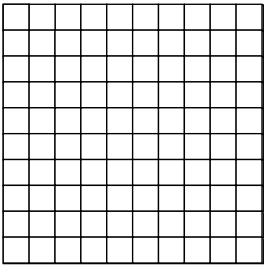
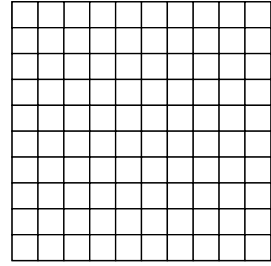
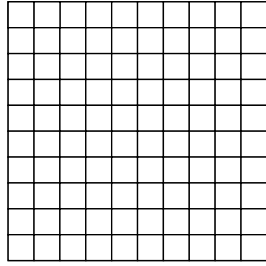
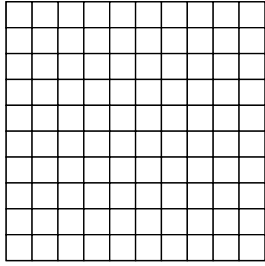
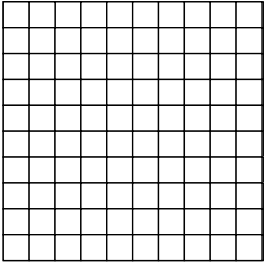
Name _____ Date _____

Strategies for Multiplying Decimals

Check-In: Q# 14–17 Feedback Box

	Expectation	Check In	Comments
Recognize that a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left. [Q# 17]	E5		
Explain the patterns in the number of zeros of the product when multiplying by a number by powers of 10. [Q# 15]	E6		
Explain patterns in the placement of the decimal point when a decimal is multiplied by a power of ten. [Q# 14, 16]	E6		

Hundredths Grids



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Strategies for Dividing Decimals

Check-In: Questions 27–30 Feedback Box

	Expectation	Check In	Comments
Explain patterns in the placement of the decimal point when a decimal is divided by a power of ten. [Q# 28]	E6		
Divide decimals using models and strategies. [Q# 27, 29]	E8		
Estimate decimal quotients. [Q# 30]	E9		

Yes ...
Yes, but ...
No, but ...
No ...

MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem. [Q# 27, 29]			
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# 30]			

Decimal Quiz

- Place these decimals in order from smallest to largest: 1.03, 0.222, 0.4, 0.47
- A.** Write $\frac{426}{1000}$ as a decimal. _____
B. Round the decimal in Question 2A to the nearest hundredth. _____
- Add: $4.53 + 0.672$
- Subtract: $4.53 - 0.672$

Estimate the answer to the following problems. Explain your estimates.

- $3.56 \times .5$
- 12.67×0.9
- $2 \div 0.8$

Use a paper-and-pencil method to solve the following problems.

- $6.9 \times 1.5 =$
- $9.45 \times 0.3 =$
- Use any strategy to solve $1.8 \div 0.3$.

Name _____ Date _____

Decimal Quiz Feedback Box	Expectation	Check In	Comments
Represent numbers to the thousandths using decimals. [Q# 2A]	E1		
Compare and order decimals to the thousandths using place value understanding and benchmarks. [Q# 1]	E3		
Round decimals using place value understanding. [Q# 2B]	E4		
Add and subtract decimals to the thousandths using models and strategies. [Q# 3–4]	E7		
Multiply and divide decimals using models and strategies. [Q# 8–10]	E8		
Estimate products and quotients involving decimals. [Q# 5–7]	E9		
MPE2. Find a strategy. I choose good tools and an efficient strategy for solving the problem.	MPE2		