EUREKA MATH PUSD

A Story of Units

Pleasanton UNIFIED SCHOOL DISTRICT Mathematics Curriculum

Grade 4 • MODULE 6

Decimal Fractions

PROBLEM SETS

Video tutorials: http://embarc.online

Info for parents: http://bit.ly/pusdmath

Version 3

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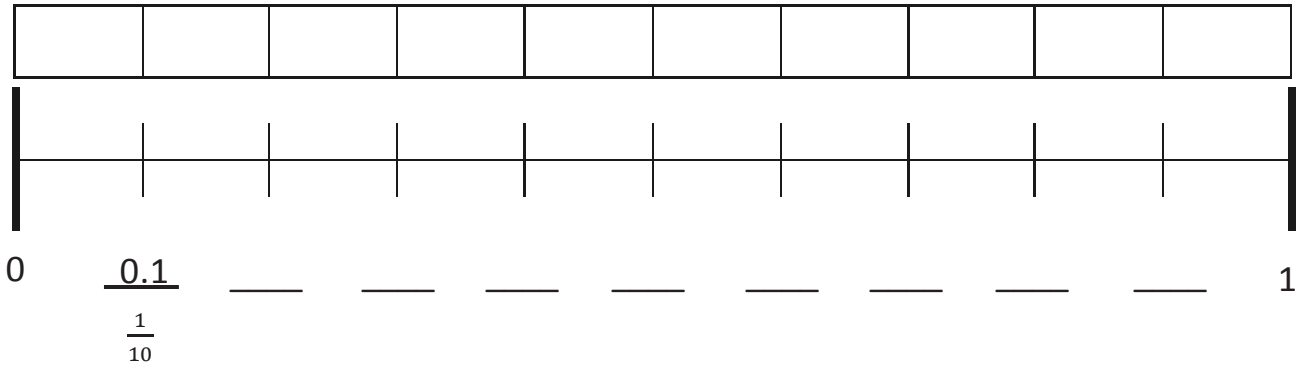
GRADE 4 • MODULE 6

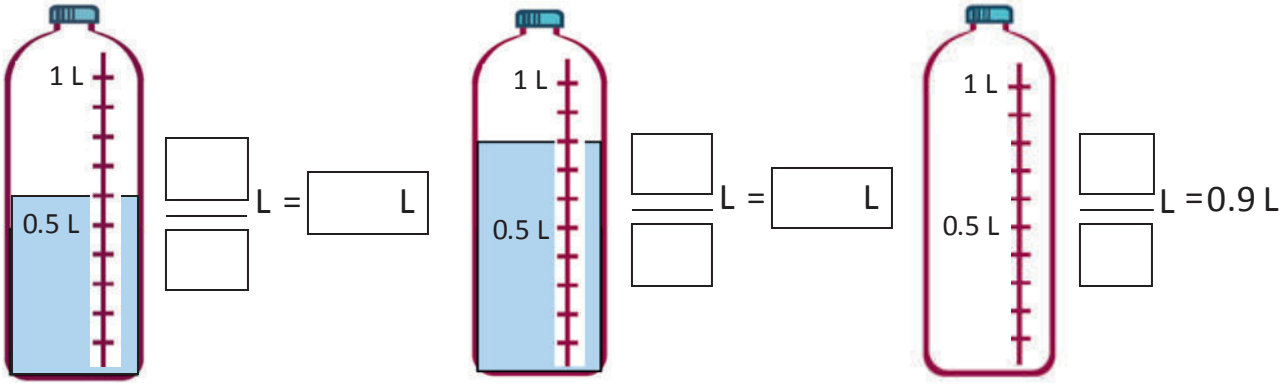
Decimal Fractions

Name _____ Date _____

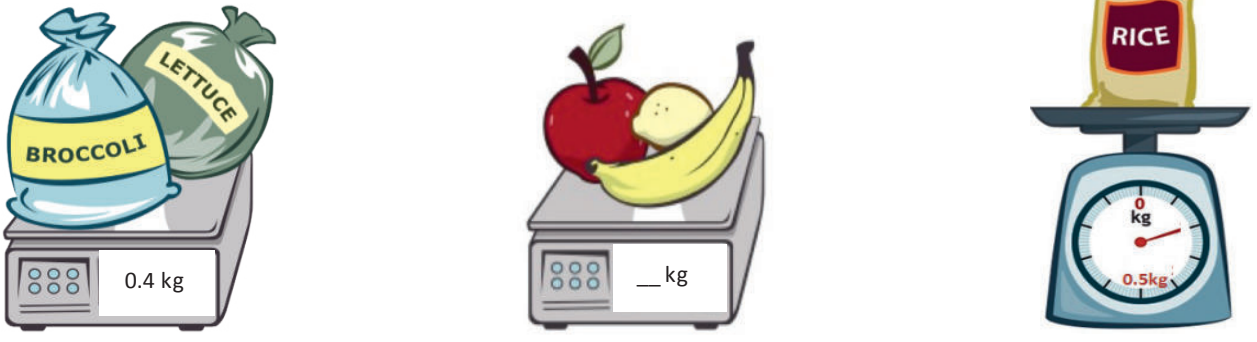
1. Shade the first 7 units of the tape diagram. Count by tenths to label the number line using a fraction and a decimal for each point. Circle the decimal that represents the shaded part.



2. Write the total amount of water in fraction form and decimal form. Shade the last bottle to show the correct amount.



3. Write the total weight of the food on each scale in fraction form or decimal form.



kg | $\frac{8}{10}$ kg | kg

4. Write the length of the bug in centimeters. (The drawing is not to scale.)

Fraction form: _____ cm

Decimal form: _____ cm

How far does the bug need to walk before its nose is at the 1 cm mark? _____ cm

5. Fill in the blank to make the sentence true in both fraction form and decimal form.

a. $\frac{8}{10}$ cm + _____ cm = 1 cm 0.8 cm + _____ cm = 1.0 cm

b. $\frac{2}{10}$ cm + _____ cm = 1 cm 0.2 cm + _____ cm = 1.0 cm

c. $\frac{6}{10}$ cm + _____ cm = 1 cm 0.6 cm + _____ cm = 1.0 cm

6. Match each amount expressed in unit form to its equivalent fraction and decimal forms.

3 tenths	$\frac{5}{10}$	0.2
5 tenths	$\frac{9}{10}$	0.6
6 tenths	$\frac{2}{10}$	0.3
9 tenths	$\frac{3}{10}$	0.5
2 tenths	$\frac{6}{10}$	0.9

Name _____ Date _____

1. For each length given below, draw a line segment to match. Express each measurement as an equivalent mixed number.

   a. 2.6 cm

   b. 3.4 cm

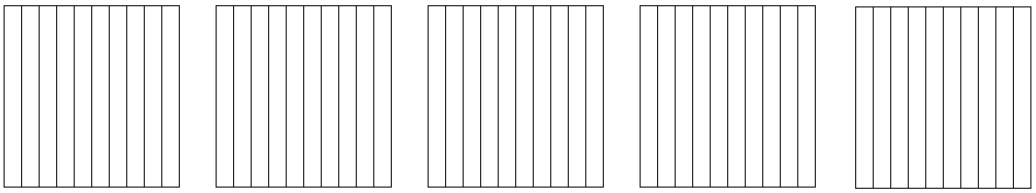
   c. 3.7 cm

   d. 4.2 cm

   e. 2.5 cm

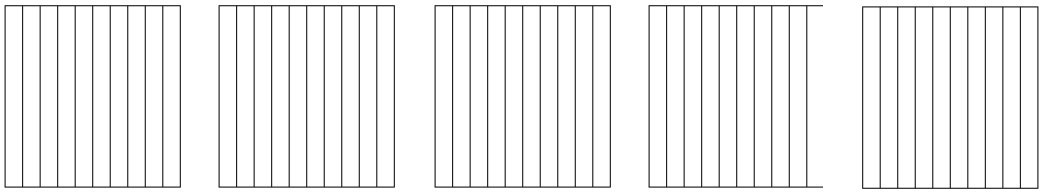
2. Write the following as equivalent decimals. Then, model and rename the number as shown below.

   a. 2 ones and 6 tenths = _____

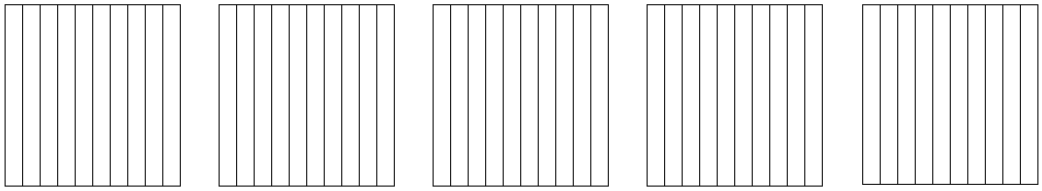


$2\frac{6}{10} = 2 + \frac{6}{10} = 2 + 0.6 = 2.6$

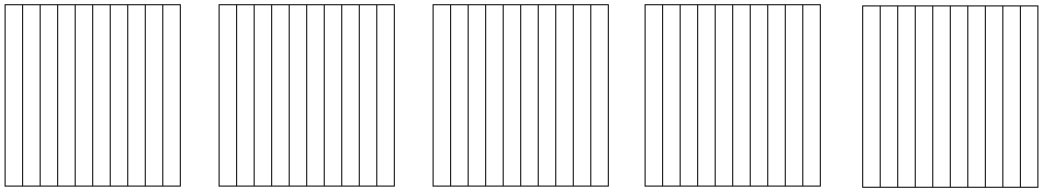
b. 4 ones and 2 tenths = _____



c. $3\frac{4}{10}$ = _____

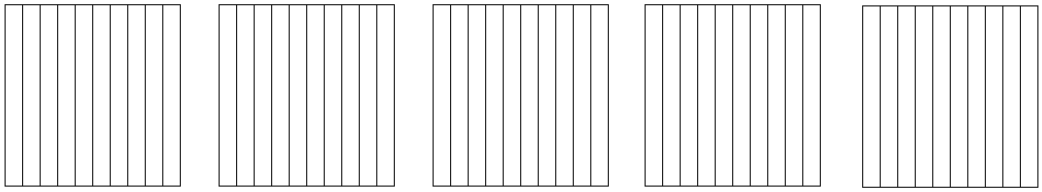


d. $2\frac{5}{10}$ = _____



How much more is needed to get to 5? _____

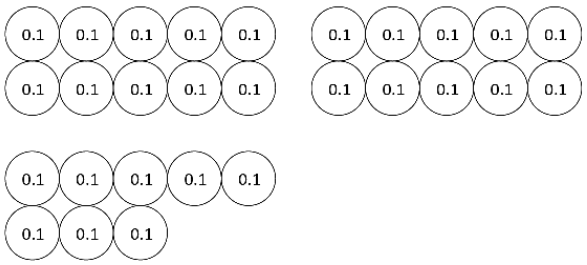
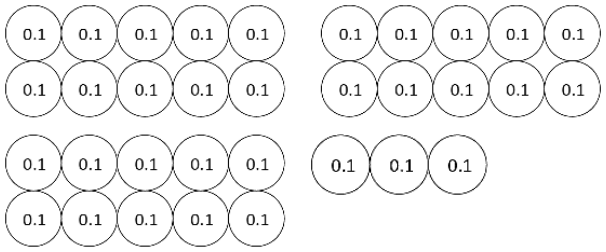
e. $\frac{37}{10}$ = _____



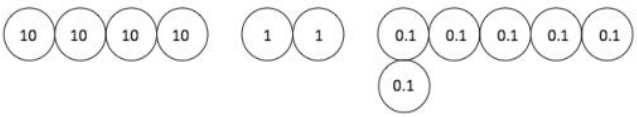
How much more is needed to get to 5? _____

Name _____ Date _____

1. Circle groups of tenths to make as many ones as possible.

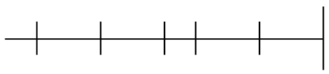
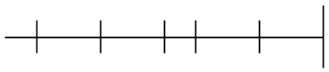
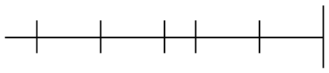
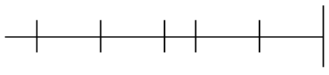
a. How many tenths in all?  There are _____ tenths.	Write and draw the same number using ones and tenths. Decimal Form: _____ How much more is needed to get to 3? _____
b. How many tenths in all?  There are _____ tenths.	Write and draw the same number using ones and tenths. Decimal Form: _____ How much more is needed to get to 4? _____

2. Draw disks to represent each number using tens, ones, and tenths. Then, show the expanded form of the number in fraction form and decimal form as shown. The first one has been completed for you.

a. 4 tens 2 ones 6 tenths  Fraction Expanded Form $(4 \times 10) + (2 \times 1) + (6 \times \frac{1}{10}) = 42\frac{6}{10}$ Decimal Expanded Form $(4 \times 10) + (2 \times 1) + (6 \times 0.1) = 42.6$	b. 1 ten 7 ones 5 tenths

c. 2 tens 3 ones 2 tenths	d. 7 tens 4 ones 7 tenths

3. Complete the chart.

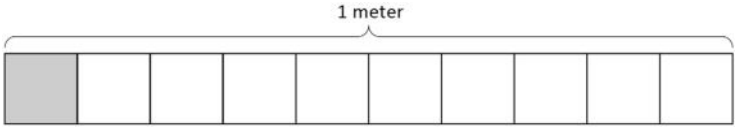
Point	Number Line	Decimal Form	Mixed Number (ones and fraction form)	Expanded Form (fraction or decimal form)	How much to get to the next one?
a.			$3\frac{9}{10}$		0.1
b.					
c.				$(7 \times 10) + (4 \times 1) + (7 \times \frac{1}{10})$	
d.			$22\frac{2}{10}$		
e.				$(8 \times 10) + (8 \times 0.1)$	

Point	Number Line	Decimal Form	Mixed Number (ones and fraction form)	Expanded Form (fraction or decimal form)	How much more is needed to get to the next one?
a.					
b.					
c.					
d.					

tenths on a number line

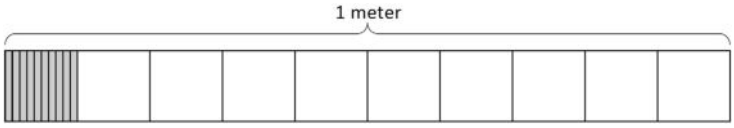
Name _____ Date _____

1. a. What is the length of the shaded part of the meter stick in centimeters?



b. What fraction of a meter is 1 centimeter?

c. In fraction form, express the length of the shaded portion of the meter stick.



d. In decimal form, express the length of the shaded portion of the meter stick.

e. What fraction of a meter is 10 centimeters?

2. Fill in the blanks.

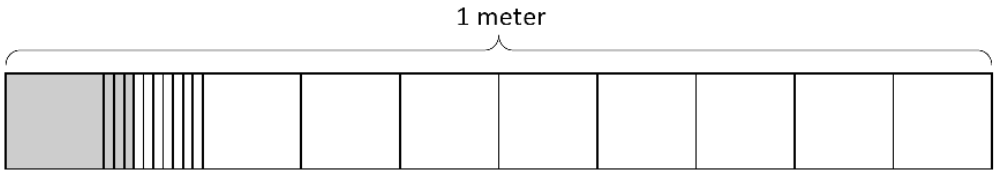
a. 1 tenth = ____ hundredths

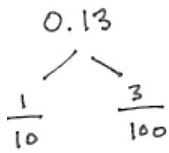
b. $\frac{1}{10}$ m = $\frac{\quad}{100}$ m

c. $\frac{2}{10}$ m = $\frac{20}{\quad}$ m

3. Use the model to add the shaded parts as shown. Write a number bond with the total written in decimal form and the parts written as fractions. The first one has been done for you.

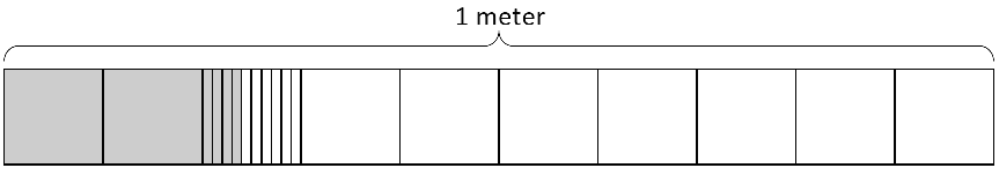
a.



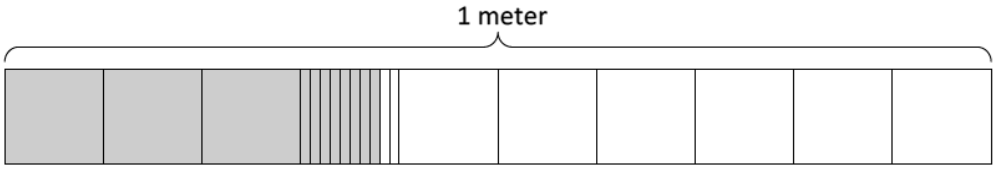


$\frac{1}{10}$ m + $\frac{3}{100}$ m = $\frac{13}{100}$ m = 0.13 m

b.

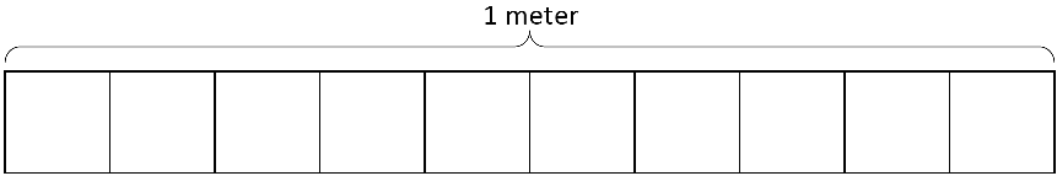


c.

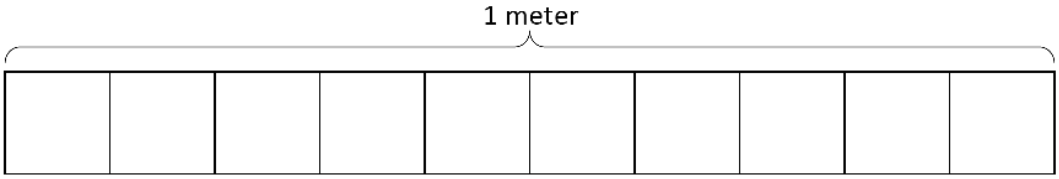


4. On each meter stick, shade in the amount shown. Then, write the equivalent decimal.

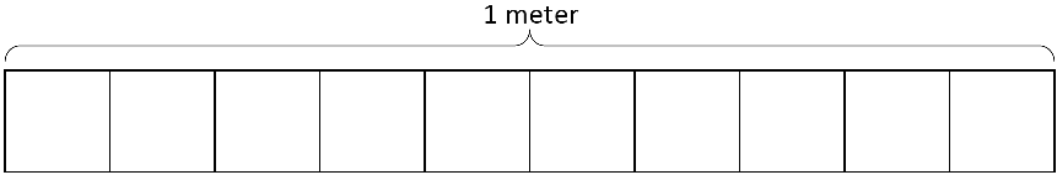
a. $\frac{8}{10}$ m



b. $\frac{7}{100}$ m



c. $\frac{19}{100}$ m



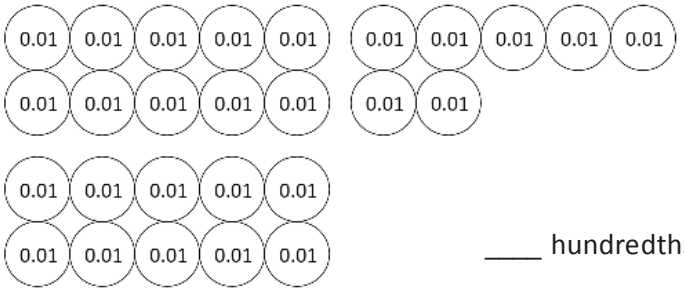
5. Draw a number bond, pulling out the tenths from the hundredths as in Problem 3. Write the total as the equivalent decimal.

a. $\frac{19}{100}$ m

b. $\frac{28}{100}$ m

c. $\frac{77}{100}$

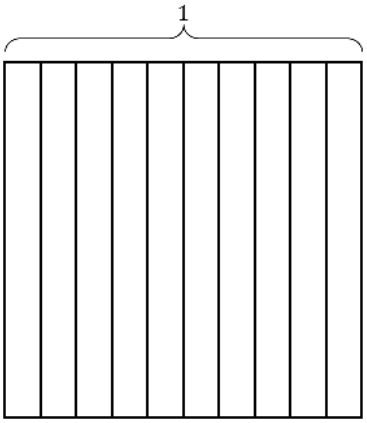
d. $\frac{94}{100}$

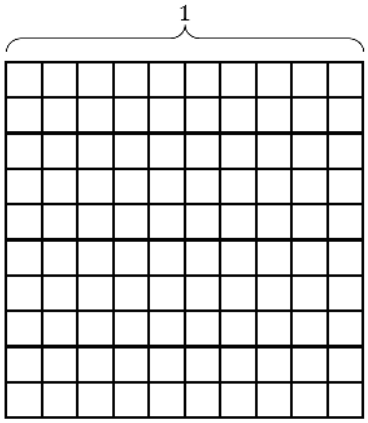
b. 

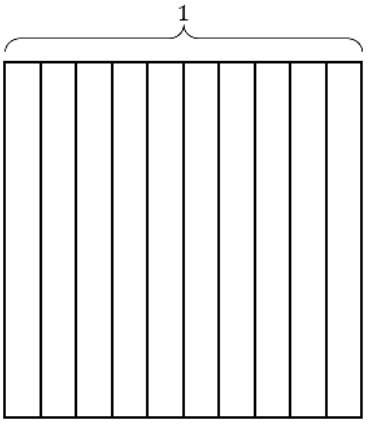
____ hundredths = _____ tenths + _____ hundredths

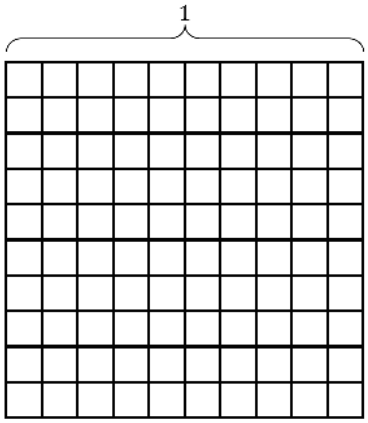
4. Use both tenths and hundredths place value disks to represent each number. Write the equivalent number in decimal, fraction, and unit form.

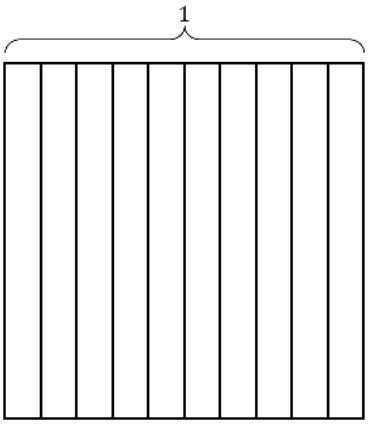
a. $\frac{3}{100}$ = 0. _____ _____ hundredths	b. $\frac{15}{100}$ = 0. _____ _____ tenth _____ hundredths
c. ——— = 0.72 _____ hundredths	d. ——— = 0.80 _____ tenths
e. ——— = 0. _____ 7 tenths 2 hundredths	f. ——— = 0. _____ 80 hundredths

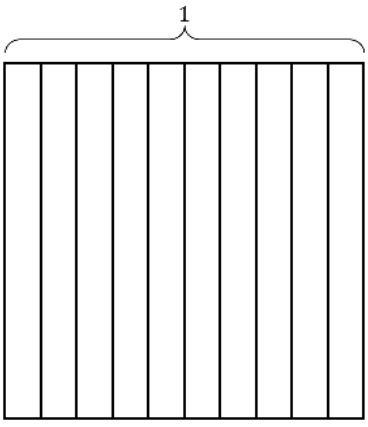


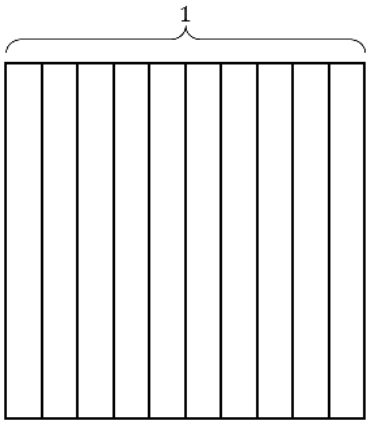










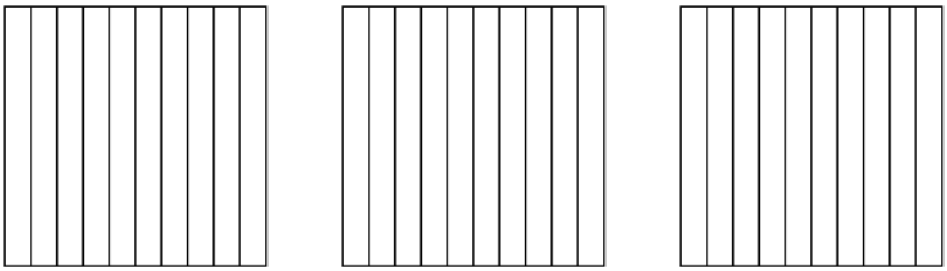


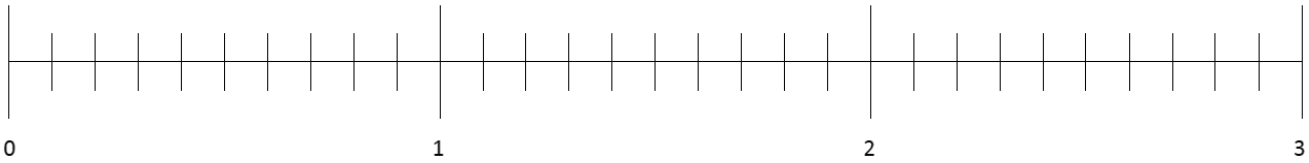
tenths and hundredths area model

Name _____ Date _____

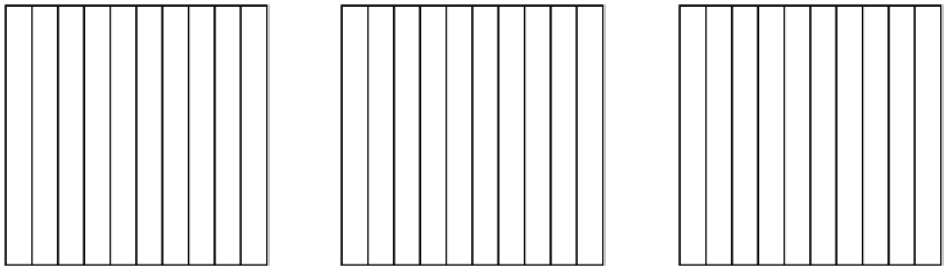
1. Shade the area models to represent the number, drawing horizontal lines to make hundredths as needed. Locate the corresponding point on the number line. Label with a point, and record the mixed number as a decimal.

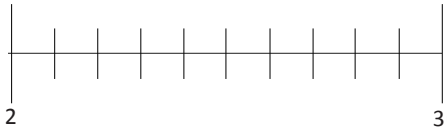
a. $1\frac{15}{100}$ = ___._____





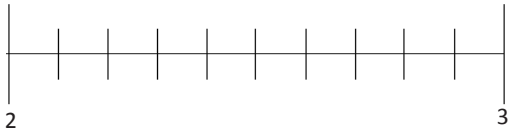
b. $2\frac{47}{100}$ = ___._____



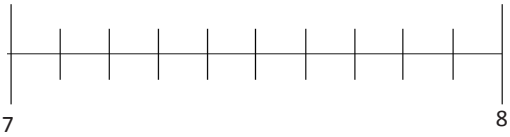


2. Estimate to locate the points on the number lines.

a. $2\frac{95}{100}$



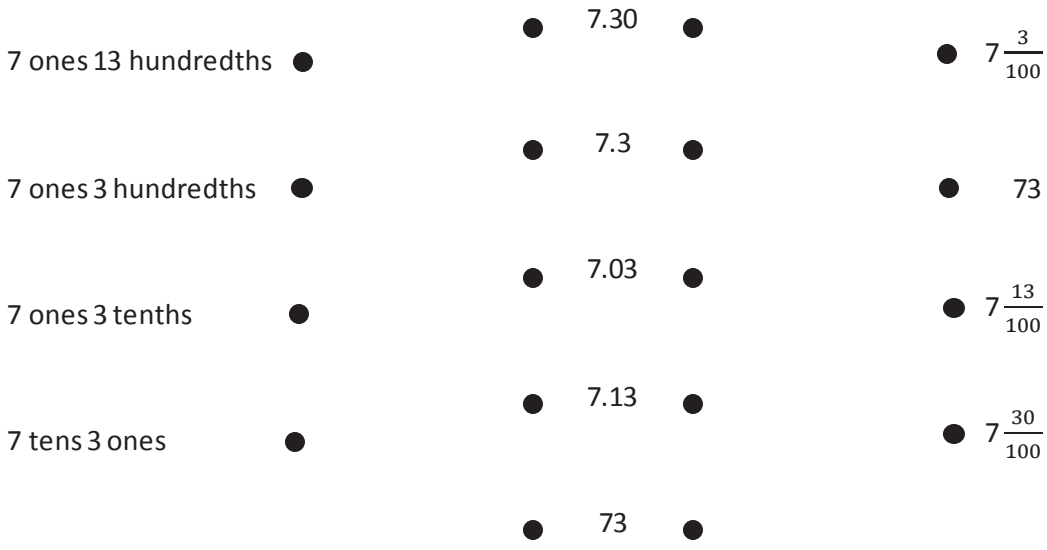
b. $7\frac{52}{100}$



3. Write the equivalent fraction and decimal for each of the following numbers.

a. 1 one 2 hundredths	b. 1 one 17 hundredths
c. 2 ones 8 hundredths	d. 2 ones 27 hundredths
e. 4 ones 58 hundredths	f. 7 ones 70 hundredths

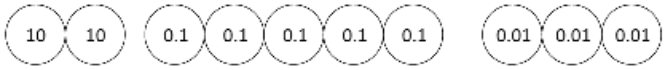
4. Draw lines from dot to dot to match the decimal form to both the unit form and fraction form. All unit forms and fractions have at least one match, and some have more than one match.



Name _____ Date _____

1. Write a decimal number sentence to identify the total value of the place value disks.

a.



2 tens 5 tenths 3 hundredths

_____ + _____ + _____ = _____

b.

5 hundreds 4 hundredths

_____ + _____ = _____

2. Use the place value chart to answer the following questions. Express the value of the digit in unit form.

hundreds	tens	ones	.	tenths	hundredths
4	1	6		8	3

a. The digit _____ is in the hundreds place. It has a value of _____.

b. The digit _____ is in the tens place. It has a value of _____.

c. The digit _____ is in the tenths place. It has a value of _____.

d. The digit _____ is in the hundredths place. It has a value of _____.

hundreds	tens	ones	.	tenths	hundredths
5	3	2		1	6

e. The digit _____ is in the hundreds place. It has a value of _____.

f. The digit _____ is in the tens place. It has a value of _____.

g. The digit _____ is in the tenths place. It has a value of _____.

h. The digit _____ is in the hundredths place. It has a value of _____.

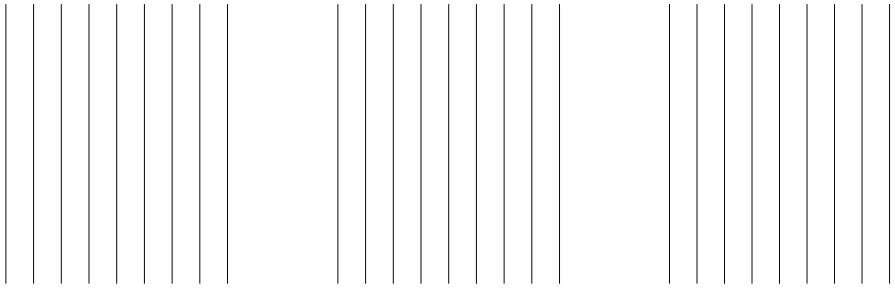
3. Write each decimal as an equivalent fraction. Then, write each number in expanded form, using both decimal and fraction notation. The first one has been done for you.

Decimal and Fraction Form	Expanded Form	
	Fraction Notation	Decimal Notation
$15.43 = 15\frac{43}{100}$	$(1 \times 10) + (5 \times 1) + (4 \times \frac{1}{10}) + (3 \times \frac{1}{100})$ $10 + 5 + \frac{4}{10} + \frac{3}{100}$	$(1 \times 10) + (5 \times 1) + (4 \times 0.1) + (3 \times 0.01)$ $10 + 5 + 0.4 + 0.03$
21.4 = _____		
38.09 = _____		
50.2 = _____		
301.07 = _____		
620.80 = _____		
800.08 = _____		

Name _____ Date _____

1. Use the area model to represent $\frac{250}{100}$. Complete the number sentence.

   a. $\frac{250}{100}$ = _____ tenths = _____ ones _____ tenths = __.____



   b. In the space below, explain how you determined your answer to part (a).

2. Draw place value disks to represent the following decompositions:

   2 ones = _____ tenths

ones	.	tenths	hundredths

   2 tenths = _____ hundredths

ones	.	tenths	hundredths

   1 one 3 tenths = ____ tenths

ones	.	tenths	hundredths

   2 tenths 3 hundredths = ____ hundredths

ones	.	tenths	hundredths

3. Decompose the units to represent each number as tenths.

a. 1 = ____ tenths

b. 2 = ____ tenths

c. 1.7 = _____ tenths

d. 2.9 = _____ tenths

e. 10.7 = _____ tenths

f. 20.9 = _____ tenths

4. Decompose the units to represent each number as hundredths.

a. 1 = _____ hundredths

b. 2 = _____ hundredths

c. 1.7 = _____ hundredths

d. 2.9 = _____ hundredths

e. 10.7 = _____ hundredths

f. 20.9 = _____ hundredths

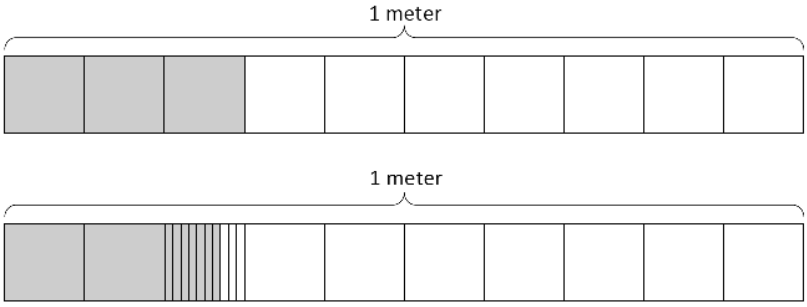
5. Complete the chart. The first one has been done for you.

Decimal	Mixed Number	Tenths	Hundredths
2.1	$2\frac{1}{10}$	21 tenths $\frac{21}{10}$	210 hundredths $\frac{210}{100}$
4.2			
8.4			
10.2			
75.5			

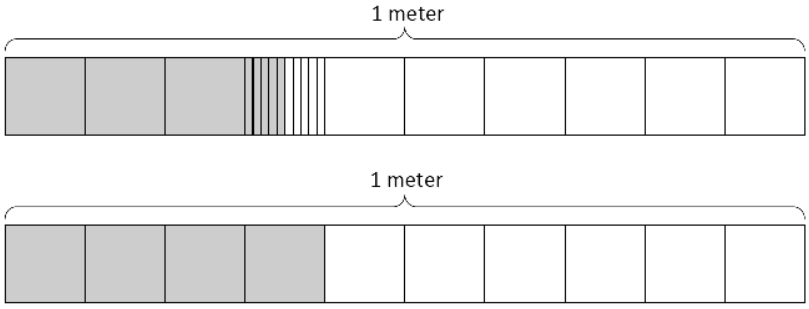
Name _____ Date _____

1. Express the lengths of the shaded parts in decimal form. Write a sentence that compares the two lengths. Use the expression *shorter than* or *longer than* in your sentence.

a.

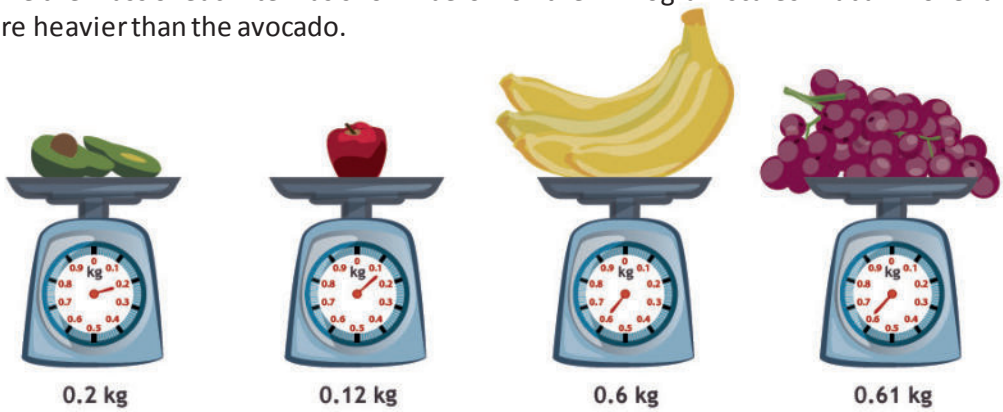


b.



c. List all four lengths from least to greatest.

2. a. Examine the mass of each item as shown below on the 1-kilogram scales. Put an X over the items that are heavier than the avocado.



b. Express the mass of each item on the place value chart.

Mass of Fruit (kilograms)

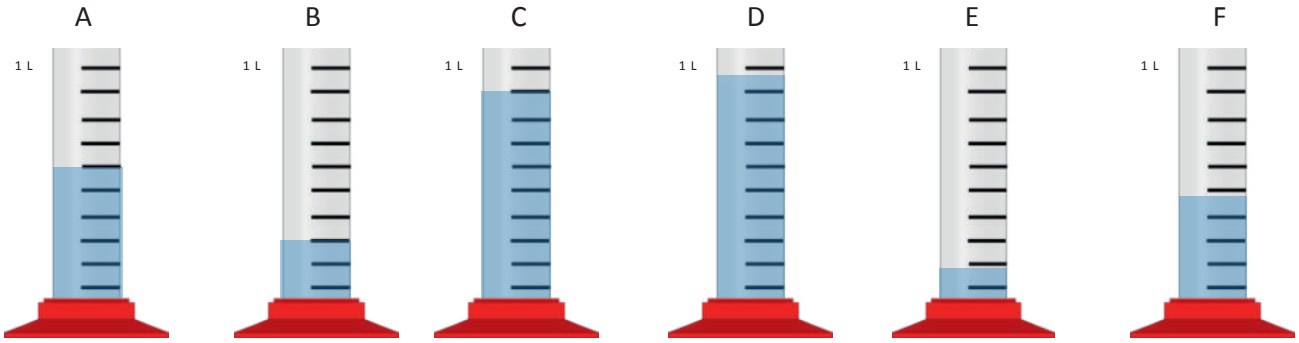
Fruit	ones	.	tenths	hundredths
avocado				
apple				
bananas				
grapes				

c. Complete the statements below using the words *heavier than* or *lighter than* in your statements.

The avocado is _____ the apple.

The bunch of bananas is _____ the bunch of grapes.

3. Record the volume of water in each graduated cylinder on the place value chart below.



0.6 liter 0.3 liter 0.9 liter 0.97 liter 0.19 liter 0.48 liter

Volume of Water (liters)

Cylinder	ones	.	tenths	hundredths
A				
B				
C				
D				
E				
F				

Compare the values using >, <, or =.

a. 0.9 L _____ 0.6 L

b. 0.48 L _____ 0.6 L

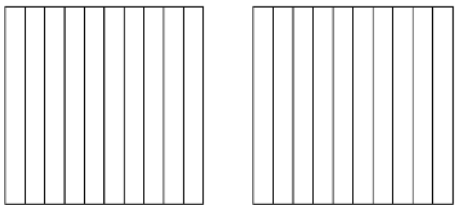
c. 0.3 L _____ 0.19 L

d. Write the volume of water in each graduated cylinder in order from least to greatest.

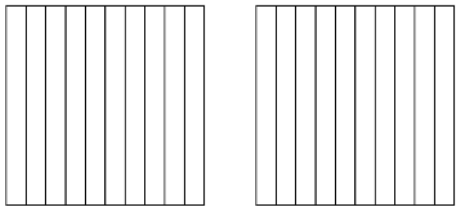
Name _____ Date _____

1. Shade the area models below, decomposing tenths as needed, to represent the pairs of decimal numbers. Fill in the blank with <, >, or = to compare the decimal numbers.

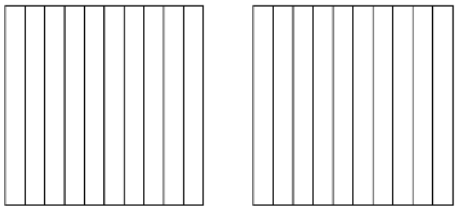
a. 0.23 _____ 0.4



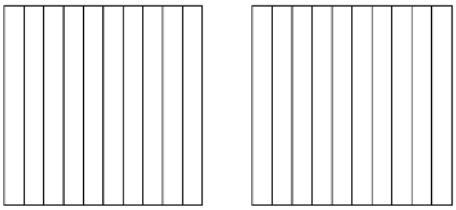
b. 0.6 _____ 0.38



c. 0.09 _____ 0.9



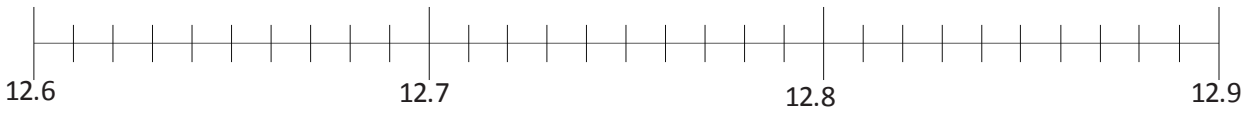
d. 0.70 _____ 0.7



2. Locate and label the points for each of the decimal numbers on the number line. Fill in the blank with <, >, or = to compare the decimal numbers.

a. 10.03 _____ 10.3

b. 12.68 _____ 12.8



3. Use the symbols <, >, or = to compare.

a. 3.42 _____ 3.75

b. 4.21 _____ 4.12

c. 2.15 _____ 3.15

d. 4.04 _____ 6.02

e. 12.7 _____ 12.70

f. 1.9 _____ 1.21

4. Use the symbols <, >, or = to compare. Use pictures as needed to solve.

a. 23 tenths _____ 2.3

b. 1.04 _____ 1 one and 4 tenths

c. 6.07 _____ $6\frac{7}{10}$

d. 0.45 _____ $\frac{45}{10}$

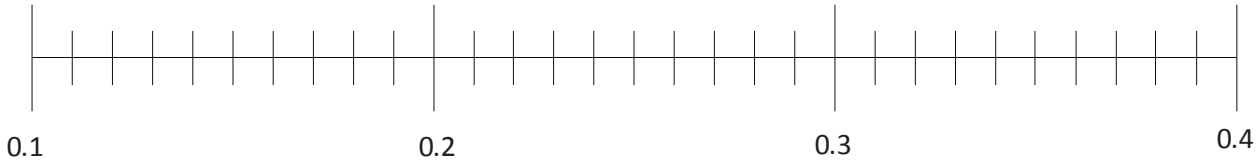
e. $\frac{127}{100}$ _____ 1.72

f. 6 tenths _____ 66 hundredths

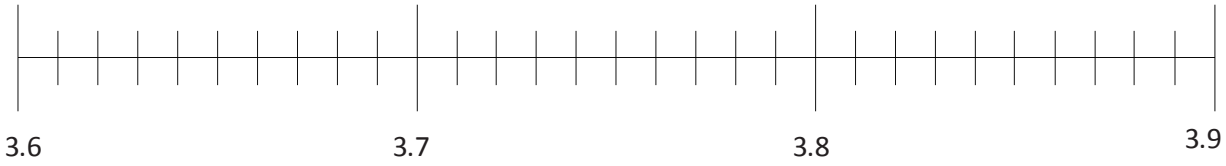
Name _____ Date _____

1. Plot the following points on the number line.

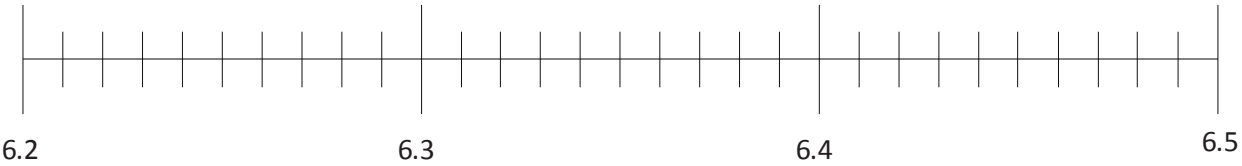
a. 0.2, $\frac{1}{10}$, 0.33, $\frac{12}{100}$, 0.21, $\frac{32}{100}$



b. 3.62, 3.7, $3\frac{85}{100}$, $\frac{38}{10}$, $\frac{364}{100}$



c. $6\frac{3}{10}$, 6.31, $\frac{628}{100}$, $\frac{62}{10}$, 6.43, 6.40



2. Arrange the following numbers in order from greatest to least using decimal form. Use the > symbol between each number.

   a. $\frac{27}{10}$, 2.07, $\frac{27}{100}$, $2\frac{71}{100}$, $\frac{227}{100}$, 2.72

   b. $12\frac{3}{10}$, 13.2, $\frac{134}{100}$, 13.02, $12\frac{20}{100}$

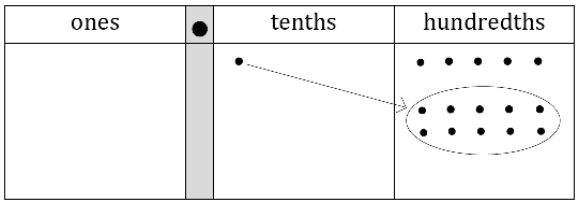
   c. $7\frac{34}{100}$, $7\frac{4}{10}$, $7\frac{3}{10}$, $\frac{750}{100}$, 75, 7.2

3. In the long jump event, Rhonda jumped 1.64 meters. Mary jumped $1\frac{6}{10}$ meters. Kerri jumped $\frac{94}{100}$ meter. Michelle jumped 1.06 meters. Who jumped the farthest?

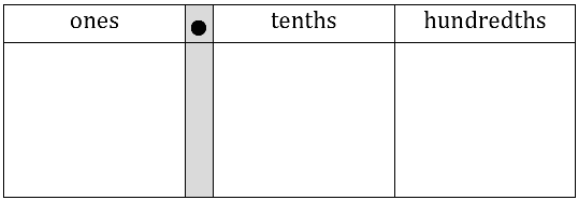
4. In December, $2\frac{3}{10}$ feet of snow fell. In January, 2.14 feet of snow fell. In February, $2\frac{19}{100}$ feet of snow fell, and in March, $1\frac{1}{10}$ feet of snow fell. During which month did it snow the most? During which month did it snow the least?

Name _____ Date _____

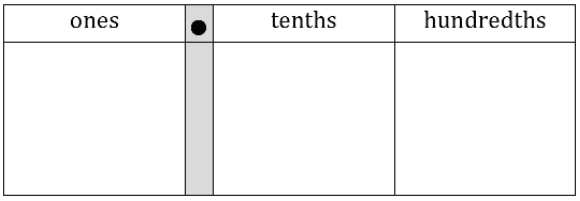
1. Complete the number sentence by expressing each part using hundredths. Model using the place value chart, as shown in part (a).



a. 1 tenth + 5 hundredths = _____ hundredths



b. 2 tenths + 1 hundredth = _____ hundredths



c. 1 tenth + 12 hundredths = _____ hundredths

2. Solve by converting all addends to hundredths before solving.

a. 1 tenth + 3 hundredths = _____ hundredths + 3 hundredths = _____ hundredths

b. 5 tenths + 12 hundredths = _____ hundredths + _____ hundredths = _____ hundredths

c. 7 tenths + 27 hundredths = _____ hundredths + _____ hundredths = _____ hundredths

d. 37 hundredths + 7 tenths = _____ hundredths + _____ hundredths = _____ hundredths

3. Find the sum. Convert tenths to hundredths as needed. Write your answer as a decimal.

a. $\frac{2}{10} + \frac{8}{100}$

b. $\frac{13}{100} + \frac{4}{10}$

c. $\frac{6}{10} + \frac{39}{100}$

d. $\frac{70}{100} + \frac{3}{10}$

4. Solve. Write your answer as a decimal.

a. $\frac{9}{10} + \frac{42}{100}$

b. $\frac{70}{100} + \frac{5}{10}$

c. $\frac{68}{100} + \frac{8}{10}$

d. $\frac{7}{10} + \frac{87}{1v00}$

5. Beaker A has $\frac{63}{100}$ liter of iodine. It is filled the rest of the way with water up to 1 liter. Beaker B has $\frac{4}{10}$ liter of iodine. It is filled the rest of the way with water up to 1 liter. If both beakers are emptied into a large beaker, how much iodine does the large beaker contain?

Name _____ Date _____

1. Solve. Convert tenths to hundredths before finding the sum. Rewrite the complete number sentence in decimal form. Problems 1(a) and 1(b) are partially completed for you.

a. $2\frac{1}{10}+\frac{3}{100}=2\frac{10}{100}+\frac{3}{100}=$ _____ $2.1+0.03=$ _____	b. $2\frac{1}{10}+5\frac{3}{100}=2\frac{10}{100}+5\frac{3}{100}=$ _____
c. $3\frac{24}{100}+\frac{7}{10}$	d. $3\frac{24}{100}+8\frac{7}{10}$

2. Solve. Then, rewrite the complete number sentence in decimal form.

a. $6\frac{9}{10}+1\frac{10}{100}$	b. $9\frac{9}{10}+2\frac{45}{100}$
c. $2\frac{4}{10}+8\frac{90}{100}$	d. $6\frac{37}{100}+7\frac{7}{10}$

3. Solve by rewriting the number sentence in fraction form. After solving, rewrite the complete number sentence in decimal form.

a. 6.4 + 5.3	b. 6.62 + 2.98
c. 2.1 + 0.94	d. 2.1 + 5.94
e. 5.7 + 4.92	f. 5.68 + 4.9
g. 4.8 + 3.27	h. 17.6 + 3.59

Name _____ Date _____

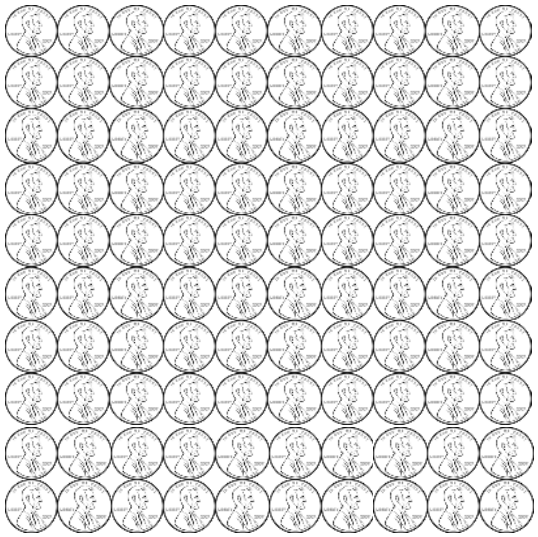
1. Barrel A contains 2.7 liters of water. Barrel B contains 3.09 liters of water. Together, how much water do the two barrels contain?

2. Alissa ran a distance of 15.8 kilometers one week and 17.34 kilometers the following week. How far did she run in the two weeks?

3. An apple orchard sold 140.5 kilograms of apples in the morning and 15.85 kilograms more apples in the afternoon than in the morning. How many total kilograms of apples were sold that day?

4. A team of three ran a relay race. The final runner's time was the fastest, measuring 29.2 seconds. The middle runner's time was 1.89 seconds slower than the final runner's. The starting runner's time was 0.9 seconds slower than the middle runner's. What was the team's total time for the race?

Name _____ Date _____



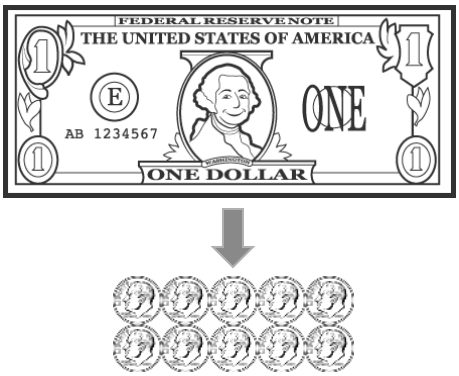
1. 100 pennies = $___._____ 100¢ = $\frac{\quad}{100}$ dollar

2. 1 penny = $___._____ 1¢ = $\frac{\quad}{100}$ dollar

3. 6 pennies = $___._____ 6¢ = $\frac{\quad}{100}$ dollar

4. 10 pennies = $___._____ 10¢ = $\frac{\quad}{100}$ dollar

5. 26 pennies = $___._____ 26¢ = $\frac{\quad}{100}$ dollar



6. 10 dimes = $___._____ 100¢ = $\frac{\quad}{10}$ dollar

7. 1 dime = $___._____ 10¢ = $\frac{\quad}{10}$ dollar

8. 3 dimes = $___._____ 30¢ = $\frac{\quad}{10}$ dollar

9. 5 dimes = $___._____ 50¢ = $\frac{\quad}{10}$ dollar

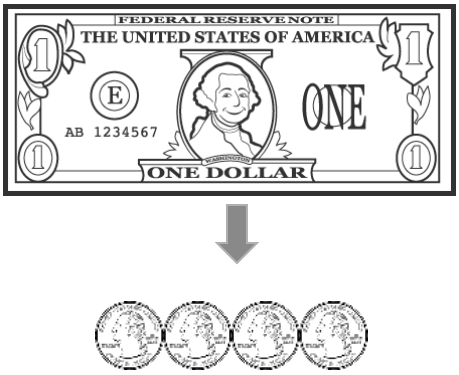
10. 6 dimes = $___._____ 60¢ = $\frac{\quad}{10}$ dollar

11. 4 quarters = $___._____ 100¢ = $\frac{\quad}{100}$ dollar

12. 1 quarter = $___._____ 25¢ = $\frac{\quad}{100}$ dollar

13. 2 quarters = $___._____ 50¢ = $\frac{\quad}{100}$ dollar

14. 3 quarters = $___._____ 75¢ = $\frac{\quad}{100}$ dollar



Solve. Give the total amount of money in fraction and decimal form.

15. 3 dimes and 8 pennies

16. 8 dimes and 23 pennies

17. 3 quarters 3 dimes and 5 pennies

18. 236 cents is what fraction of a dollar?

Solve. Express the answer as a decimal.

19. 2 dollars 17 pennies + 4 dollars 2 quarters

20. 3 dollars 8 dimes + 1 dollar 2 quarters 5 pennies

21. 9 dollars 9 dimes + 4 dollars 3 quarters 16 pennies

Name _____ Date _____

Use the RDW process to solve. Write your answer as a decimal.

1. Miguel has 1 dollar bill, 2 dimes, and 7 pennies. John has 2 dollar bills, 3 quarters, and 9 pennies. How much money do the two boys have in all?

2. Suilin needs 7 dollars 13 cents to buy a book. In her wallet, she finds 3 dollar bills, 4 dimes, and 14 pennies. How much more money does Suilin need to buy the book?

3. Vanessa has 6 dimes and 2 pennies. Joachim has 1 dollar, 3 dimes, and 5 pennies. Jimmy has 5 dollars and 7 pennies. They want to put their money together to buy a game that costs $8.00. Do they have enough money to buy the game? If not, how much more money do they need?

4. A pen costs $2.29. A calculator costs 3 times as much as a pen. How much do a pen and a calculator cost together?

5. Krista has 7 dollars and 32 cents. Malory has 2 dollars and 4 cents. How much money does Krista need to give Malory so that each of them has the same amount of money?

Video tutorials: http://embarc.online
Info for parents: http://bit.ly/pusdmath