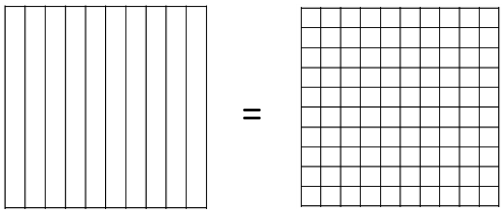
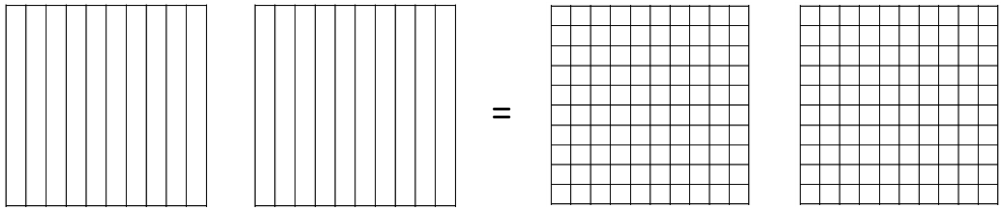
Name _____ Date _____

1. Decompose each fraction into hundredths using area models. Then, write the equivalent number sentence using decimals.

a. $\frac{8}{10} = \_\_\_$



b. $\frac{18}{10} = \_\_\_$

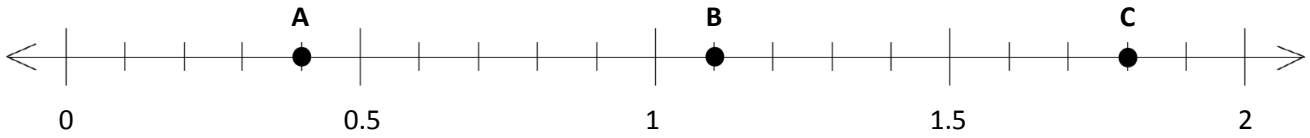


Decompose each fraction into hundredths. Then, write the equivalent statement for each part using decimals.

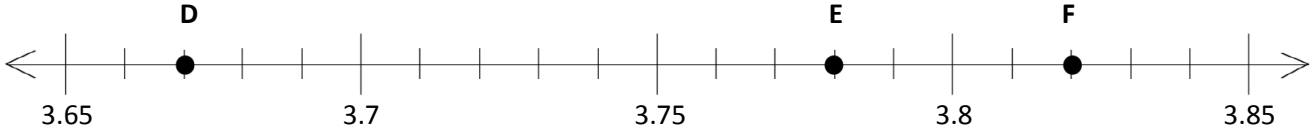
c. $\frac{2}{10} = \_\_\_$

d. $\frac{5}{10} = \_\_\_$

2. Several points are plotted on the number lines below. Identify the decimal number associated with each point.



A. _____ **B.** _____ **C.** _____



D. _____ **E.** _____ **F.** _____

3. Use the symbols >, =, or < to compare the following. Justify your conclusions using pictures, numbers, or words.

a. 0.02 ◯ 0.22

b. 0.6 ◯ 0.60

c. 17 tenths ◯ 1.7

d. 1.04 ◯ $1\frac{4}{10}$

e. 0.38 ◯ $\frac{38}{10}$

f. 4.05 ◯ $4\frac{5}{100}$

g. 3 tenths + 2 hundredths ◯ 1 tenth + 13 hundredths

h. 8 hundredths + 7 tenths ◯ 6 tenths + 17 hundredths

4. Solve.

a. Express your solution as a fraction of a meter. 0.3 m + 1.45 m

b. Express your solution as a fraction of a liter. 1.7 L + 0.82 L

c. Express your solution as a fraction of a dollar. 4 dimes 1 penny + 77 pennies

5. Solve.

a. $\frac{7}{10} + \frac{8}{100}$

b. $\frac{4}{10} + \frac{51}{100}$

c. $\frac{5}{10} + \frac{68}{100}$

d. $\frac{98}{100} + \frac{2}{10}$

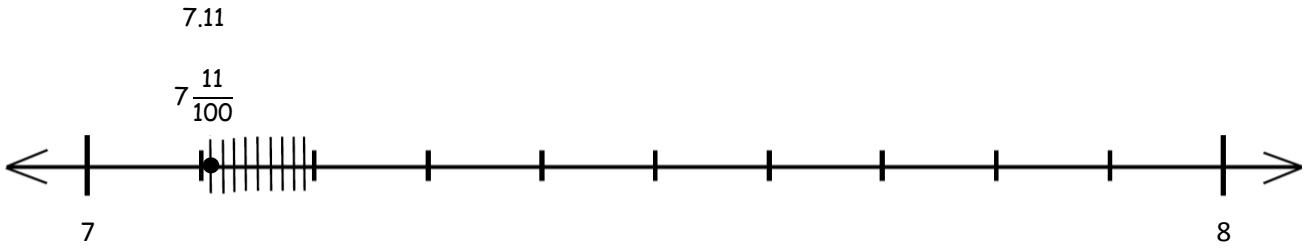
e. $\frac{12}{100} + \frac{12}{10}$

f. $\frac{1}{10} + \frac{13}{100} + \frac{8}{10}$

6. Answer the following questions about a track meet.

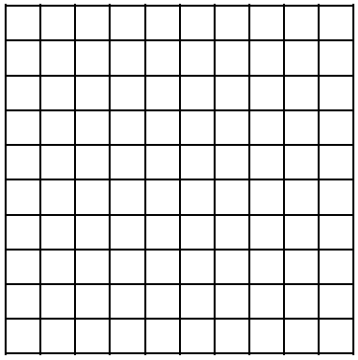
   a. Jim and Joe ran in a relay race. Jim had a time of 9.8 seconds. Joe had a time of 10.32 seconds. Together, how long did it take them to complete the race? Record your answer as a decimal.

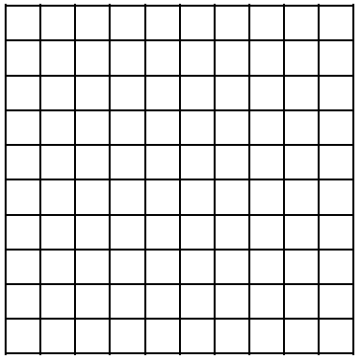
   b. The times of the 5 fastest runners were 7.11 seconds, 7.06 seconds, 7.6 seconds, 7.90 seconds, and 7.75 seconds. Locate these times on the number line. Record the times as decimals and fractions. One has been completed for you.



   c. Natalie threw a discus 32.04 meters. She threw 3.8 meters farther on her next throw. Write a statement to compare the two distances that Natalie threw the discus using >, <, or =.

d. At the concession stand, Marta spent 89 cents on a bottle of water and 5 dimes on a bag of chips. Shade the area models to represent the cost of each item.





e. Write a number sentence in fraction form to find the total cost of a water bottle and a bag of chips. After solving, write the complete number sentence in decimal form.

f. Brian and Sonya each have a container. They mark their containers to show tenths. Brian and Sonya each fill their containers with 0.7 units of juice. However, Brian has more juice in his container. Explain how this is possible.

End-of-Module Assessment Task Standards Addressed	Topics A–E

Understand decimal notation for fractions, and compare decimal fractions.

4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.* (Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.)

4.NF.6 Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*

4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Evaluating Student Learning Outcomes

A Progression Toward Mastery is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency.* In this chart, this progress is presented from left (Step 1) to right (Step 4). The learning goal for students is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what the students CAN do now and what they need to work on next.

A Progression Toward Mastery				
Assessment Task Item and Standards Assessed	**STEP 1 Little evidence of reasoning without a correct answer. (1 Point)**	**STEP 2 Evidence of some reasoning without a correct answer. (2 Points)**	**STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points)**	**STEP 4 Evidence of solid reasoning with a correct answer. (4 Points)**
1 **4.NF.5** **4.NF.6**	The student answers fewer than two parts correctly.	The student answers two parts correctly.	The student correctly answers three of the four parts of the question, showing solid reasoning. OR The student answers all parts correctly without correctly modeling on the place value charts.	The student correctly uses the area models to represent: a. $\frac{8}{10} = \frac{80}{100}$; 0.8 = 0.80 b. $\frac{18}{10} = \frac{180}{100}$; 1.8 = 1.80 c. $\frac{2}{10} = \frac{20}{100}$; 0.2 = 0.20 d. $\frac{5}{10} = \frac{50}{100}$; 0.5 = 0.50
2 **4.NF.6**	The student correctly answers two or fewer parts of the question.	The student correctly answers three parts of the question.	The student correctly answers four or five parts of the question.	The student correctly answers: a. 0.4 b. 1.1 c. 1.8 d. 3.67 e. 3.78 f. 3.82
3 **4.NF.6** **4.NF.7**	The student answers four or fewer parts of the question correctly with little to no reasoning.	The student correctly answers four or five parts of the question, providing evidence of some reasoning.	The student correctly answers six or seven parts of the question, with solid reasoning for each part correct. OR The student correctly solves all parts but does not provide solid reasoning for one or two parts.	The student correctly answers and reasons correctly using pictures, numbers, or words for each part: a. < b. = c. = d. < e. < f. = g. > h. >

A Progression Toward Mastery				
4 **4.NF.5**	The student correctly answers one or no parts.	The student correctly answers two parts of the question but does not include the units or provide ample evidence of reasoning.	The student correctly answers two of the three parts of the question, providing solid evidence or reasoning. OR The student solves all three parts correctly, providing only some or partially correct reasoning.	The student correctly answers: a. $1\frac{75}{100}$ meters b. $2\frac{52}{100}$ liters c. $1\frac{18}{100}$ dollars
5 **4.NF.5**	The student correctly answers two or fewer parts of the question.	The student correctly answers three or four of the six parts of the question.	The student correctly answers five of the six parts of the question.	The student correctly answers: a. $\frac{78}{100}$ b. $\frac{91}{100}$ c. $\frac{118}{100}$ or $1\frac{18}{100}$ d. $\frac{118}{100}$ or $1\frac{18}{100}$ e. $\frac{132}{100}$ or $1\frac{32}{100}$ f. $\frac{103}{100}$ or $1\frac{3}{100}$
6 **4.NF.5** **4.NF.6** **4.NF.7** **4.MD.2**	The student correctly answers fewer than three problems, providing little to no reasoning.	The student correctly answers three or four of the six problems, providing some reasoning.	The student correctly answers five of the six problems with solid reasoning. OR The student answers all six parts correctly but provides less than solid evidence in no more than two parts.	The student correctly: a. Answers 20.12 seconds. b. Plots the times on the number line and records each time as a decimal and fraction. c. Answers $32\frac{4}{100}$ m < $35\frac{84}{100}$ m; or 32.04 m < 35.84 m. d. Shades each area model representing each item. e. $\frac{89}{100} + \frac{50}{100} =$

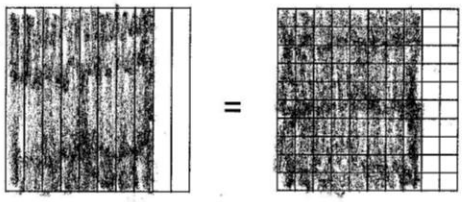
A Progression Toward Mastery				
				$\frac{139}{100} = 1\frac{39}{100}$; $0.89 + $0.50 = $1.39 f. Reasons that Brian's container of juice is larger, and, therefore, each tenth unit will fill more juice than Sonya's container. Comparing is only valid when the unit whole is the same. The containers' unit wholes were of different sizes.

Name Jack Date _____

1. Decompose each fraction into hundredths using area models. Then, write the equivalent number sentence using decimals.

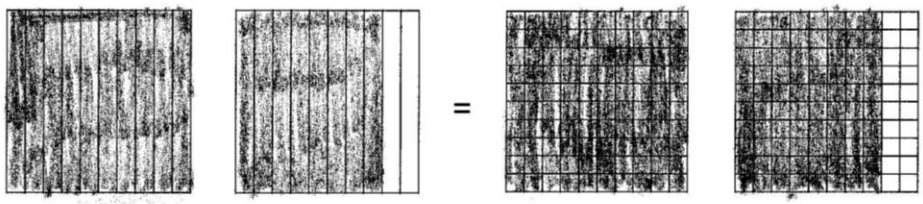
a. $\frac{8}{10} = \frac{80}{100}$

0.8 = 0.80



b. $\frac{18}{10} = \frac{180}{100}$

1.8 = 1.80

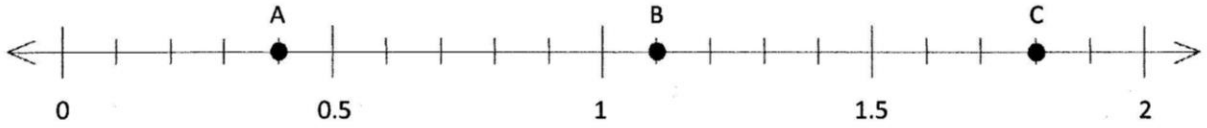


Decompose each fraction into hundredths. Then, write the equivalent statement for each part using decimals.

c. $\frac{2}{10} = \frac{20}{100}$ 0.2 = 0.20

d. $\frac{5}{10} = \frac{50}{100}$ 0.5 = 0.50

2. Several points are plotted on the number lines below. Identify the decimal number associated with each point.



A. 0.4 B. 1.1 C. 1.8

D. 3.67 E. 3.78 F. 3.82

3. Use the symbols >, =, or < to compare the following. Justify your conclusions using pictures, numbers, or words.

a. 0.02 < 0.22

2 hundredths is less than 22 hundredths

b. 0.6 = 0.60

$0.6 = \frac{6}{10}$ and $\frac{6}{10} = \frac{6 \times 10}{10 \times 10} = \frac{60}{100}$

$0.60 = \frac{60}{100}$ They are equal.

c. 17 tenths = 1.7

$\frac{17}{10} = \frac{10}{10} + \frac{7}{10} = 1\frac{7}{10} = 1.7$

d. $1.04 < 1\frac{4}{10}$

Hundredths are smaller than tenths, so 4 hundredths is less than 4 tenths. Since they both have one whole, $1.04 < 1\frac{4}{10}$.

e. $0.38 < \frac{38}{10}$

$\frac{38}{10} = 3\frac{8}{10}$

$\frac{30}{10}$ $\frac{8}{10}$

38 hundredths is less than 1. 38 tenths is greater than 1.

f. $4.05 = 4\frac{5}{100}$

4.05 is 4 and 5 hundredths. That is the same as $4\frac{5}{100}$.

g. 3 tenths + 2 hundredths > 1 tenth + 13 hundredths

$\frac{3}{10} + \frac{2}{100} = \frac{30}{100} + \frac{2}{100} = \frac{32}{100}$ $\frac{1}{10} + \frac{13}{100} = \frac{10}{100} + \frac{13}{100} = \frac{23}{100}$

32 hundredths is greater than 23 hundredths.

h. 8 hundredths + 7 tenths > 6 tenths + 17 hundredths

$\frac{8}{100} + \frac{7}{10} = \frac{8}{100} + \frac{70}{100} = \frac{78}{100}$ $\frac{6}{10} + \frac{17}{100} = \frac{60}{100} + \frac{17}{100} = \frac{77}{100}$

78 hundredths is greater than 77 hundredths.

4. Solve.

a. Express your solution as a fraction of a meter. 0.3 m + 1.45 m

$\frac{3}{10}\text{m} + 1\frac{45}{100}\text{m} = \frac{30}{100}\text{m} + 1\frac{45}{100}\text{m} = 1\frac{75}{100}\text{m}$

b. Express your solution as a fraction of a liter. 1.7 L + 0.82 L

$1\frac{7}{10}\text{L} + \frac{82}{100}\text{L} = 1\frac{70}{100}\text{L} + \frac{82}{100}\text{L} = 1\frac{152}{100}\text{L} = 2\frac{52}{100}\text{L}$

$\frac{152}{100} = \frac{100}{100} + \frac{52}{100}$

c. Express your solution as a fraction of a dollar. 4 dimes 1 penny + 77 pennies

$\frac{4}{10}\text{ dollar} + \frac{1}{100}\text{ dollar} + \frac{77}{100}\text{ dollar} = \frac{40}{100}\text{ dollar} + \frac{1}{100}\text{ dollar} + \frac{77}{100}\text{ dollar}$

$= \frac{118}{100}\text{ dollars} = 1\frac{18}{100}\text{ dollars}$

5. Solve.

a. $\frac{7}{10} + \frac{8}{100}$

$\frac{70}{100} + \frac{8}{100} = \frac{78}{100}$

b. $\frac{4}{10} + \frac{51}{100}$

$\frac{40}{100} + \frac{51}{100} = \frac{91}{100}$

c. $\frac{5}{10} + \frac{68}{100}$

$\frac{50}{100} + \frac{68}{100} = \frac{118}{100} = 1\frac{18}{100}$

$\frac{118}{100} = \frac{100}{100} + \frac{18}{100}$

d. $\frac{98}{100} + \frac{2}{10}$

$\frac{98}{100} + \frac{20}{100} = \frac{118}{100} = 1\frac{18}{100}$

$\frac{118}{100} = \frac{100}{100} + \frac{18}{100}$

e. $\frac{12}{100} + \frac{12}{10}$

$\frac{12}{100} + \frac{120}{100} = \frac{132}{100} = 1\frac{32}{100}$

$\frac{132}{100} = \frac{100}{100} + \frac{32}{100}$

f. $\frac{1}{10} + \frac{13}{100} + \frac{8}{10}$

$\frac{10}{100} + \frac{13}{100} + \frac{80}{100} = \frac{103}{100} = 1\frac{3}{100}$

$\frac{103}{100} = \frac{100}{100} + \frac{3}{100}$

6. Answer the following questions about a track meet.

a. Jim and Joe ran in a relay race. Jim had a time of 9.8 seconds. Joe had a time of 10.32 seconds. Together, how long did it take them to complete the race? Record your answer as a decimal.

$9.8 = 9\frac{8}{10} = 9\frac{80}{100}$

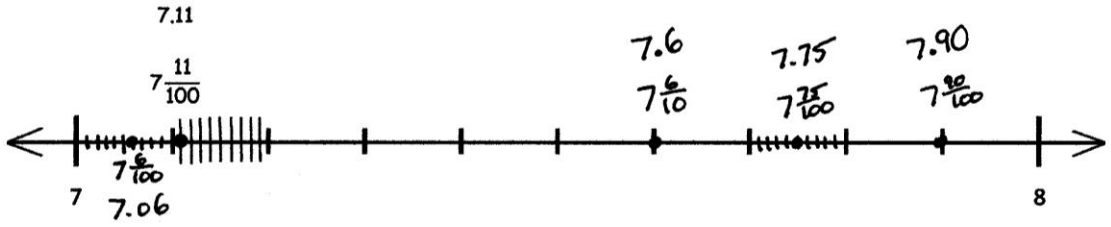
$10.32 = 10\frac{32}{100}$

$9\frac{80}{100} + 10\frac{32}{100} = 19\frac{112}{100} = 20\frac{12}{100} = 20.12$

$\frac{100}{100}$ $\frac{12}{100}$

It took them 20.12 seconds to complete the race.

b. The times of the 5 fastest runners were 7.11 seconds, 7.06 seconds, 7.6 seconds, 7.90 seconds, and 7.75 seconds. Locate these times on the number line. Record the times as decimals and fractions. One has been completed for you.

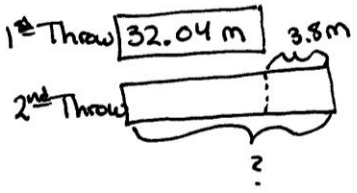


c. Natalie threw a discus 32.04 meters. She threw 3.8 meters farther on her next throw. Write a statement to compare the two distances that Natalie threw the discus using >, <, or =.

$32.04 = 32\frac{4}{100}$

$3.8 = 3\frac{80}{100}$

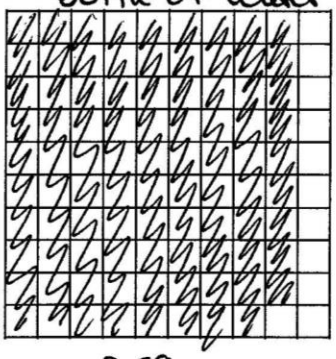
$32\frac{4}{100} + 3\frac{80}{100} = 35\frac{84}{100} = 35.84$



32.04m < 35.84m

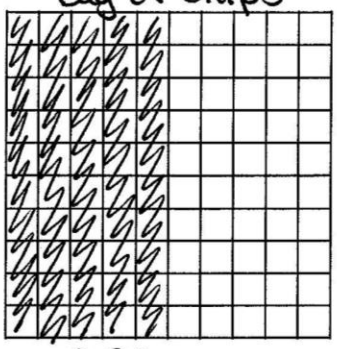
d. At the concession stand, Marta spent 89 cents on a bottle of water and 5 dimes on a bag of chips. Shade the area models to represent the cost of each item.

Bottle of Water



0.89

Bag of Chips



0.50

e. Write a number sentence in fraction form to find the total cost of a water bottle and a bag of chips. After solving, write the complete number sentence in decimal form.

$$\frac{89}{100} + \frac{50}{100} = \frac{139}{100} = 1\frac{39}{100}$$

$$\frac{100}{100} \quad \frac{39}{100}$$

$0.89 + 0.50 = 1.39$

$\$0.89 + \$0.50 = \$1.39$

f. Brian and Sonya each have a container. They mark their containers to show tenths. Brian and Sonya each fill their containers with 0.7 units of juice. However, Brian has more juice in his container. Explain how this is possible.

It is possible that Brian has more juice in his container because we don't know that Brian and Sonya's containers are the same size. If Brian's container is larger than Sonya's, his tenths of a unit will be larger than Sonya's and, therefore, he will have more juice.