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LESSON
29 Comparing Decimals

CCSS: 4.NF.7

PART 1 Introduction

Compare decimals the same way you compare whole numbers, by looking at the digits in the same places. Compare tenths to tenths and hundredths to hundredths.

Compare 0.72 and 0.68.

Line up the numbers on the decimal points. Then look at the tenths.

0.**7**2
0.**6**8

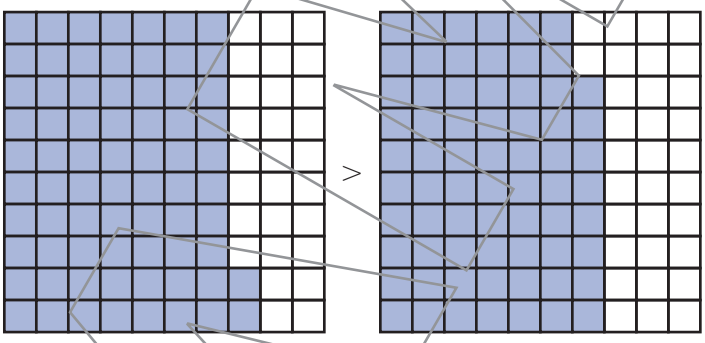
The 7 in the tenths place is greater than the 6 in the tenths place, so 0.72 is greater than 0.68. You can write this using the symbol >.

$$0.72 > 0.68$$

> means "is greater than."
< means "is less than."
The symbol always points to the smaller number.

You can use models such as grids or a number line to show your conclusion is correct.

Shade one grid to show 0.72. Shade a second grid to show 0.68.

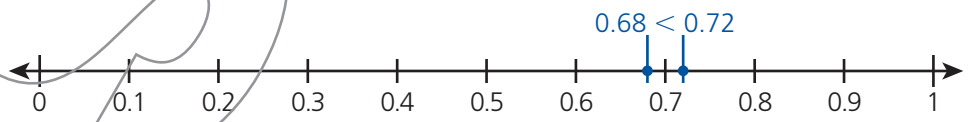


0.72 0.68

Decimals you compare must name parts of the same size whole. You cannot compare 0.6 mile and 0.2 kilometer because the units are different wholes.

More parts are shaded in the model for 0.72 than in the model for 0.68, so 0.72 > 0.68 is true.

To check your answer on a number line, plot each number. The number that is on the right is greater than the number on the left.



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Think About It

If the decimals you are comparing have different numbers of places, how can you compare them? For example, how can you compare 0.1 and 0.15?

_____

_____

PART 2 Focused Instruction

Compare decimals using place values.

Ones	Decimal point	Tenths	Hundredths
0	.	1	2

➤ Compare 0.41 and 0.38.

What is the first place to the right of the decimal point? _____

What is the second place to the right of the decimal point?

_____

Write the numbers at the right, one above the other. Line them up on the decimal points.

Which place should you compare first? _____ Circle the digits above.

What are the digits in this place in each number? _____

Which digit is greater? _____

Do you need to compare the digits in the next place to the right? _____

Which number is greater? _____

Write a comparison of the numbers using >, <, or =. _____

Models can help you compare decimals.

➤ Fred buys a bag of nuts that weighs 0.18 pound. Franny buys a bag of nuts that weighs 0.2 pound. Did Fred buy a greater or a lesser amount than Franny?

What place is Fred's amount written in? _____

What place is Franny's amount written in? _____

How many hundredths are equal to 1 tenth? _____

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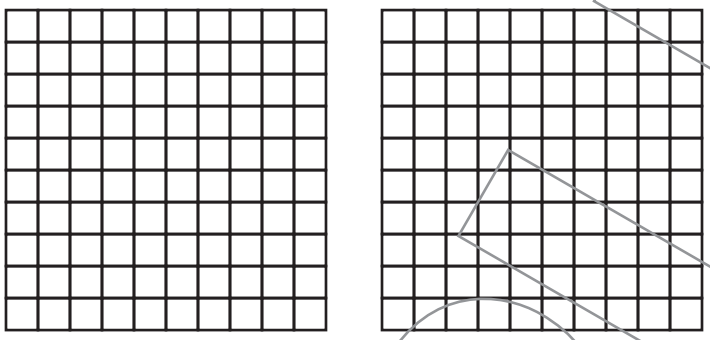
How many hundredths are equal to 0.2? _____

Shade the left grid to model the number of hundredths in 0.18. Shade the right grid to model the number of hundredths in 0.2.



0.18 0.2

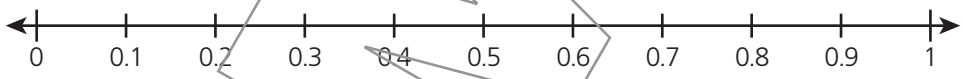
Which grid has a greater amount shaded? _____

Write a comparison using a <, >, or = symbol. _____

Use a number line to compare and order decimals.

➤ List the decimals 0.82, 0.53, and 0.69 in order from least to greatest.

Mark each decimal with a point on the number line below. Label the points.



Are numbers on the left larger or smaller than numbers on the right? _____

Write the numbers in order from least to greatest. _____

Use what you know about comparing decimals to answer these questions.

1 Complete each comparison with the correct symbol, >, <, or =.

0.37 ☐ 0.29 0.48 ☐ 0.5 0.6 ☐ 0.60

2 Write the decimals 0.29, 0.3, and 0.18 in order from greatest to least.

_____

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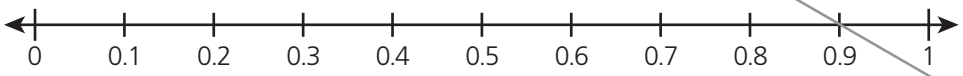
Solve the following problems.

1 Sachiko lives 0.36 mile from Olga and 0.28 mile from Livia.

Part A Draw and label a point on the number line for each decimal.



The greater number is always on the right on a number line.

Part B Write a comparison statement to compare the decimals.

Answer _____

Use the symbol >, <, or = to compare the numbers.

Part C Which friend lives farthest from Sachiko?

Answer _____

2 The chart shows the weights of three packages, in kilograms.

Package	Weight (kilograms)
A	0.78
B	0.09
C	0.8

Part A Write the weights in order from least to greatest.

Answer _____

Write 0.8 as an equivalent decimal in hundredths. Then compare.

Part B Explain how you found your answer.

_____

_____

_____

_____

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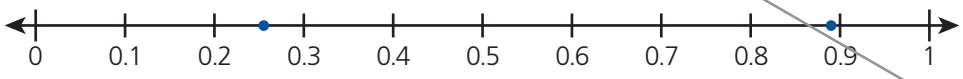
Solve the following problems.

1 Astrid marked two decimals on this number line. Then she wrote a true comparison using the decimals she marked.



Which comparison could be the one Astrid wrote?

A $0.2 > 0.8$

B $0.35 > 0.91$

C $0.36 < 0.88$

D $0.26 < 0.89$

2 Mark True or False for each comparison.

	True	False
$0.29 > 0.31$	☐	☐
$0.09 < 0.10$	☐	☐
$0.82 > 0.90$	☐	☐
$0.2 = 0.02$	☐	☐
$0.30 < 0.33$	☐	☐
$0.7 = 0.70$	☐	☐

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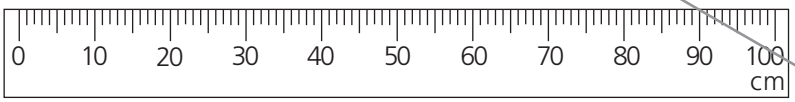
3 A centimeter (cm) is 0.01 meter. A decimeter (dm) is 0.10 meter.

Part A Mark and label 5 dm and 35 cm on the meter stick below.

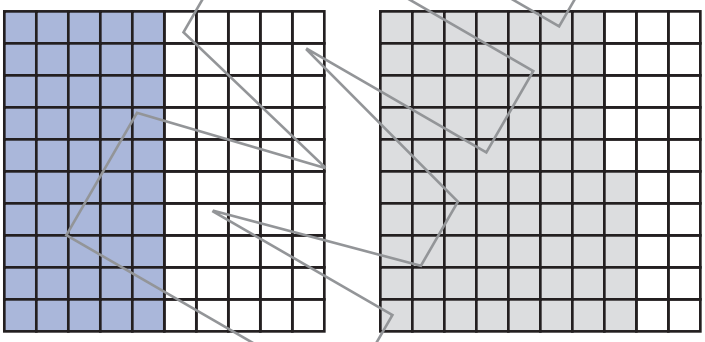


Part B Which measurement is greater?

Answer _____

4 Sanjay and Neela each had a bag of candy holding 100 pieces. Sanjay's bag weighed 4 pounds and held 100 chocolate bars. Neela's bag weighed 1 pound and held 100 jellybeans. Sanjay ate 0.50 of the candy in his bag. Neela ate 0.75 of the candy in her bag.

Neela made the grids to show that she ate a greater amount of candy.



Explain the mistake that Neela made.

_____

_____

_____

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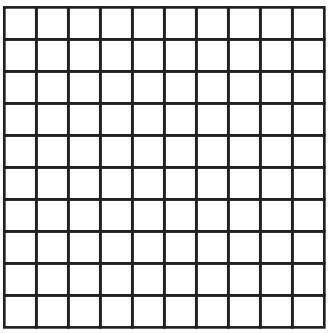
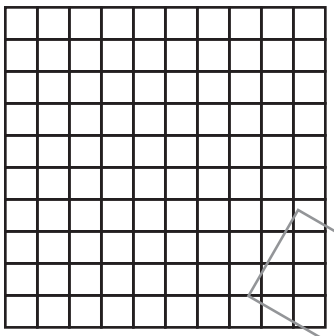
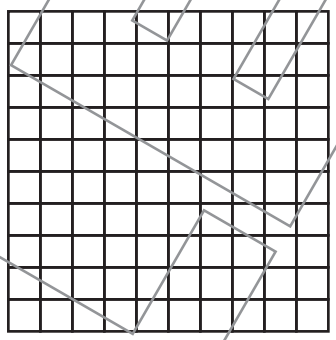
5 Three trucks haul rocks from a quarry. Truck A carries 0.57 ton. Truck B carries 0.65 ton. Truck C carries 0.09 ton.



Load on Truck A



Load on Truck B



Load on Truck C

Part A Shade the grids to show the weights on the trucks. Explain why you can compare these decimals.

_____

_____

Part B Chuck ordered the load weights on each truck from least to greatest as follows: 0.57 ton, 0.65 ton, and 0.09 ton. What mistake did Chuck make? Explain.

_____

_____

Part C Write the weights in the correct order using the symbols >, <, or =.

Answer _____

6 One pitcher holds 0.4 liter of lemonade. A second pitcher holds 0.46 liter of lemonade. A third pitcher holds an amount of lemonade that is between the amounts in the first and second pitchers. Write a decimal that could name the amount, in liters, of lemonade in the third pitcher.

Answer _____ liter

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