

Activity 6

Comparing Decimals— Wider Isn't Always Larger!



Teacher Notes

Objective

- ◆ To compare and order decimals.

Materials

- ◆ TI-73 Calculator

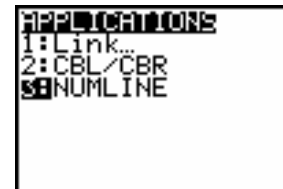
Introduction

Sometimes students will say that 2.35 is greater than 2.3. While this is true, it is possible that a student might believe that 2.35 is larger than 2.3 simply because 2.35 has more digits. Comparing decimals can be difficult for some students. This activity will show how you might foster those skills using the Number Line application.

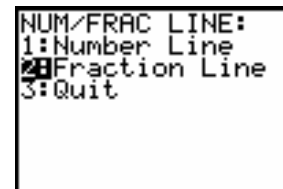
Procedure

1. Demonstrate how to show that 2.35 exceeds 2.3 using the Number Line application.

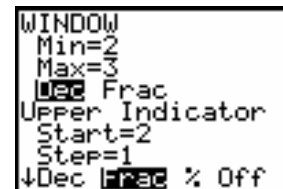
Start the application by pressing **[APPS]** and pressing to select the NUMLINE application.



Once the App has started, select 2: Fraction Line.



Press **[WINDOW]** to set the window to **Min = 2** and **Max = 3**. Choose **Dec** (decimal), change **Start** to 2 and **Step** to 1. Set the Lower Indicator to **Off**.



Press **DRAW** to mark the first number 2.35. Press **ENTER** to select **DrawLabel** and enter the number 2.35.

```
DRAW
1: DrawLabel
2: ClrDraw
```

The number line will appear with the value 2.35 indicated.

```
Label1=2.35
|-----|
2               3
```

Next, enter the second number 2.3. Press **ENTER** to select **DrawLabel** and enter the number 2.3.

```
Label1=2.3
|-----|
2       |       3
       2.35
```

You can see that 2.3 is to the left of the 2.35. Notice that part of the label for 2.35 is overwritten by the label for 2.3.

```
Label1=
|-----|
2       |       3
       2.3 5
```

Discuss with the students the relationship between the image shown on the screen and the placement of the numbers. To clear the marks for 2.35 and 2.3, press **DRAW** and select **2: ClrDraw** to clear the drawing.

Now, compare 1.63 and 1.6289 using the Number Line application. Use **Min = 1.6**, **Max = 1.7**, **Start = 1.6**, and **Step = .01**. Repeat the steps above for these numbers.

- Distribute the Student Activity pages with the problem statement. Have students work in pairs using one calculator between them.
- Have the students access the Number Line application by pressing **APPS** and pressing **↓** to select the NUMLINE application. Press **ENTER** twice to get to the NUM/FRAC LINE menu and select **2: Fraction Line**.

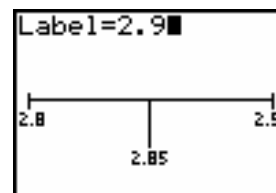
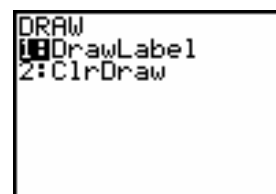
In order for students to view the pattern change they must change the calculators' window values to match those seen at the right. Press **WINDOW** and change **Min** to 2.8, **Max** to 2.9, **Start** to 2.8, **Step** to .1, and select **Dec**.

```
WINDOW
Min=2.8
Max=2.9
Dec Frac
Upper Indicator
Start=2.8
Step=.1
↓Dec Frac % Off
```

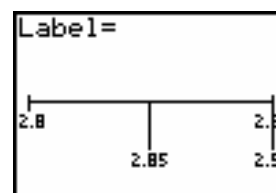
Press **↓** to view the window for the Lower Indicator. Select **Off** for the Lower Indicator.

```
↑WINDOW
Lower Indicator
Start=0
Step=.25
Dec Frac % Off
```

Press **DRAW** to mark the first number, 2.85. Press **ENTER** to select 1:DrawLabel and enter the number 2.85. Press **ENTER** and the number line will appear with the value 2.85 indicated.



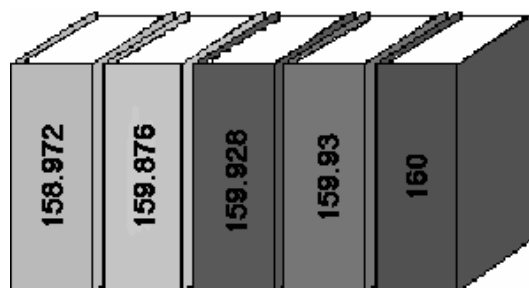
Now enter the second number 2.9 and press **ENTER**. You can see that 2.85 is to the left of the 2.9.



4. Students will first complete the comparison activity with the Number Line application and will then discuss other methods for comparing decimals.

Answer Key

3. 15.762 is on the left. 15.81 is on the right.
4. Compare these numbers. Circle the larger number.
- 2.35, **2.4**
 - 0.98**, 0.076
 - 14.95**, 14.931
5. Write the smaller number before the larger number.
- 1.23, 1.262
 - 12.3, 13.2
 - .056, .06
6. Answers will vary. Be sure to discuss students' answers to this question. Some may suggest digit by digit comparisons for each place value. Others might suggest placing enough 0's behind each number so that the numbers could be compared like whole numbers.
7. 3.221, 3.227, 3.229, 3.23, 3.235, 3.33
8. Displayed in order:
 158.972
 159.876
 159.928
 159.93
 160





Name _____

Date _____

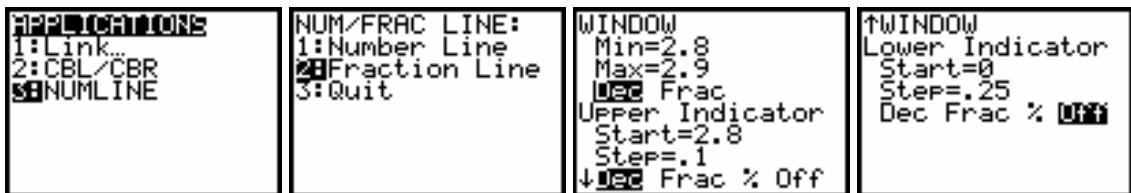
Activity 6

Comparing Decimals—Wider Isn't Always Larger!

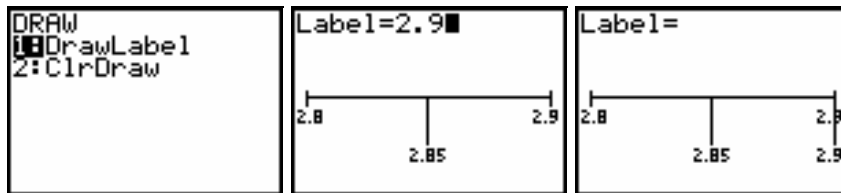
Objective: In this activity, you will investigate how to compare and order decimals using the fraction Number Line. You will use the Number Line application on the TI-73 calculator.

In some libraries, books are ordered using the Dewey Decimal System. To do this, librarians and their assistants must be able to compare and order decimals. We will explore how to do this in this activity.

1. Access the Number Line application by pressing **[APPS]** and pressing **▾** to select the NUMLINE application. Press **[ENTER]** twice to get to the NUM/FRAC LINE menu and select 2: Fraction Line.



Press **[WINDOW]** and set **Min = 2.8**, **Max = 2.9**, and **Start=2.8**. Choose **Dec** (decimal), and turn off the lower indicator. Now, press **[DRAW]** to mark the first number **2.85**. Press **[ENTER]** to select **DrawLabel**, enter the number **2.85**, and press **[ENTER]**. The number line will appear with the value **2.85** indicated. Next, enter the second number **2.9**. You can see that **2.85** is to the left of the **2.9**. The largest of the two numbers is to the *right* of the smaller number.



2. To clear the marks for 2.85 and 2.9, press **[DRAW]** twice and select 2:ClrDraw to clear the drawing.
3. Compare 15.762 and 15.81. Press **[WINDOW]** to set the window to show the numbers between 15.5 and 16. Set **Min = 15.5**, **Max = 16**, **Start = 15.5** and **Step = .1**. Choose **Dec** (decimal) and turn off the lower indicator. Now, press **[DRAW]** to mark the first number **15.762**. Press **[ENTER]** to select **1:DrawLabel** and enter the number **15.762** on the screen. Next, enter the second number **15.81**.
Which number is on the left? _____
Which number is on the right? _____

4. Use the Number Line application to compare these numbers. Circle the larger number.
 - a. 2.35, 2.4
 - b. 0.98, 0.076
 - c. 14.95, 14.931
 5. Use the Number Line application to compare these numbers. Write the smaller number before the larger number.
 - a. 1.23, 1.262:
 - b. 13.2, 12.3:
 - c. 0.056, 0.06:
 6. Can you and your partner think of other ways to correctly compare decimals? Be ready to share your ideas with your class. Write your explanation here.
-
7. Write these numbers in order from smallest to largest:
3.33, 3.23, 3.229, 3.221, 3.235, 3.227
 8. These books are marked with numbers using the Dewey Decimal System. Sort them in order from least to greatest.

