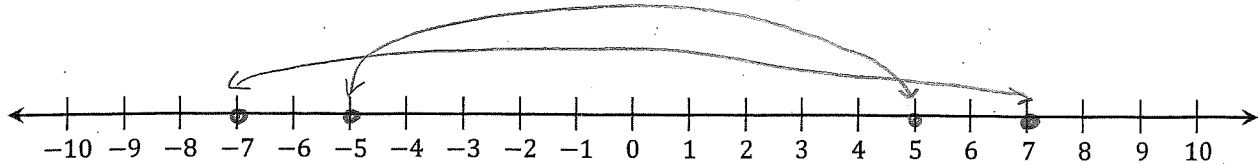


Lesson 7: Ordering Integers and Other Rational Numbers

Classwork

Exercise 1

- a. Graph the number 7 and its opposite on the number line. Graph the number 5 and its opposite on the number line.



- b. Where does 7 lie in relation to 5 on the number line?

7 is 2 units to the right of 5.

- c. Where does the opposite of 7 lie on the number line in relation to the opposite of 5?

-7 is 2 units to the left of -5.

- d. I am thinking of two numbers. The first number lies to the right of the second number on a number line. What can you say about the location of their opposites? (If needed, refer to your number line diagram.)

The opposite of the second number must lie to the right of the opposite of the first number. If we call the first number x and the second number y , then $-x$ and $-y$ will have the opposite order of x and y .

Example 1

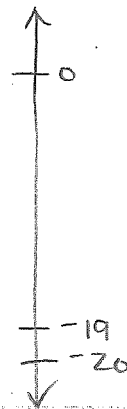
The record low temperatures for a town in Maine are -20°F for January and -19°F for February. Order the numbers from least to greatest. Explain how you arrived at the order.

January -20 February -19

Draw a # line model.

Write: Since -20 is farthest from zero
 $\therefore -19$ is above -20 on the vertical
 number line, -20 is less than -19 .

Answer: $-20, -19$



Exercises 2-4

For each problem, order the rational numbers from least to greatest by first reading the problem, then drawing a number line diagram, and finally, explaining your answer.

2. Jon's time for running the mile in gym class is 9.2 minutes. Jacky's time is 9.18 minutes. Who ran the mile in less time?

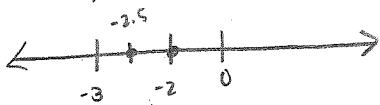
9.18, 9.2

Jacky ran the mile in less time than Jon.



3. Mrs. Rodriguez is a teacher at Westbury Middle School. She gives bonus points on tests for outstanding written answers and deducts points for answers that are not written correctly. She uses rational numbers to represent the points. She wrote the following on students' papers: Student A: -2 points, Student B: -2.5 points. Did Student A or Student B perform worse on the test?

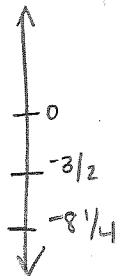
-2.5, -2



Student B did worse than Student A.

4. A carp is swimming approximately $8\frac{1}{4}$ feet beneath the water's surface, and a sunfish is swimming approximately $3\frac{1}{2}$ feet beneath the water's surface. Which fish is swimming farther beneath the water's surface?

$-8\frac{1}{4}$, $-3\frac{1}{2}$



Carp is swimming farther beneath water's surface.

Example 2

Henry, Janon, and Clark are playing a card game. The object of the game is to finish with the most points. The scores at the end of the game are Henry: -7, Janon: 0, and Clark: -5. Who won the game? Who came in last place? Use a number line model, and explain how you arrived at your answer.

-7, -5, 0

Janon won the game with 0.
Henry got last place.



I ordered #'s on number line
-7 is farthest to the left. -7 is
Smallest of three numbers, Henry
came in last place. Next, is -5,
which is to the right of -7 but to
the left of zero. Farthest to the
right is 0. 0 is the greatest
of three #'s. Janon won
the game.

Exercises 5–6

For each problem, order the rational numbers from least to greatest by first reading the problem, then drawing a number line diagram, and finally, explaining your answer.

5. Henry, Janon, and Clark are playing another round of the card game. Their scores this time are as follows: Clark: -1 , Janon: -2 , and Henry: -4 . Who won? Who came in last place?

$-4, -2, -1$

Clark won the game.

Henry came in last place.

6. Represent each of the following elevations using a rational number. Then, order the numbers from least to greatest.

Cayuga Lake 122 meters above sea level

Mount Marcy 1,629 meters above sea level

New York Stock Exchange Vault 15.24 meters below sea level

$-15.24, 122, 1,629$



Closing: What Is the Value of Each Number, and Which Is Larger?

Use your teacher's verbal clues and this number line to determine which number is larger.

