

Name _____

Date _____

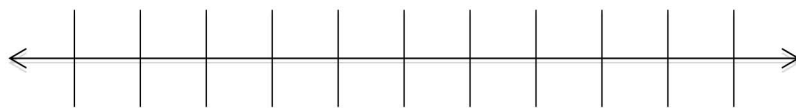
Writing and Interpreting Inequality Statements

Involving Rational Numbers

Kendra collected data for her science project. She surveyed people asking them how many hours they sleep during a typical night. The chart below shows how each person's response compares to 8 hours (which is the answer she expected most people to say).

Name	Number of Hours (usually slept each night)	Compared to 8 hours
Frankie	8.5	0.5
Mr. Fields	7	-1.0
Karla	9.5	1.5
Louis	8	0
Tiffany	$7\frac{3}{4}$	$-\frac{1}{4}$

- a. Plot and label each of the numbers in the right-most column of the table above on the number line below.

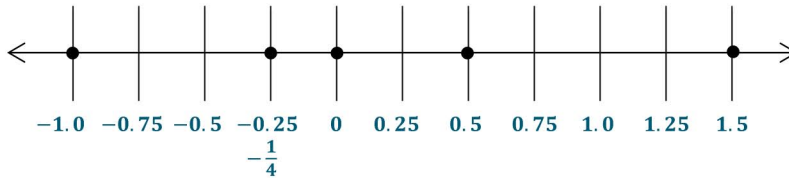


- b. List the numbers from least to greatest.
- c. Using your answer from part (b) and inequality symbols, write one statement that shows the relationship among all of the numbers.

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- b. List the numbers from least to greatest.

$$-1.0, -\frac{1}{4}, 0, 0.5, 1.5$$

- c. Using your answer from part (b) and inequality symbols, write one statement that shows the relationship among all the numbers.

$$-1.0 < -\frac{1}{4} < 0 < 0.5 < 1.5 \text{ or } 1.5 > 0.5 > 0 > -\frac{1}{4} > -1.0$$

For each of the relationships described below, write an inequality that relates the rational numbers.

1. Seven feet below sea level is farther below sea level than $4\frac{1}{2}$ feet below sea level.

$$-7 < -4\frac{1}{2}$$

2. Sixteen degrees Celsius is warmer than zero degrees Celsius.

$$16 > 0$$

3. Three and one-half yards of fabric is less than five and one-half yards of fabric.

$$3\frac{1}{2} < 5\frac{1}{2}$$

4. A loss of \$500 in the stock market is worse than a gain of \$200 in the stock market.

$$-500 < 200$$

5. A test score of 64 is worse than a test score of 65, and a test score of 65 is worse than a test score of $67\frac{1}{2}$.

$$64 < 65 < 67\frac{1}{2}$$

6. In December the total snowfall was 13.2 inches, which is more than the total snowfall in October and November, which was 3.7 inches and 6.15 inches, respectively.

$$13.2 > 6.15 > 3.7$$

For each of the following, use the information given by the inequality to describe the relative position of the numbers on a horizontal number line.

7. $-0.2 < -0.1$

-0.2 is to the left of -0.1 or -0.1 is to the right of -0.2.

8. $8\frac{1}{4} > -8\frac{1}{4}$

$8\frac{1}{4}$ is to the right of $-8\frac{1}{4}$ or $-8\frac{1}{4}$ is to the left of $8\frac{1}{4}$.

9. $-2 < 0 < 5$

-2 is to the left of zero and zero is to the left of 5 or 5 is to the right of zero and zero is to the right of -2.

10. $-99 > -100$

-99 is to the right of -100 or -100 is to the left of -99.

11. $-7.6 < -7\frac{1}{2} < -7$

-7.6 is to the left of $-7\frac{1}{2}$ and $-7\frac{1}{2}$ is to the left of -7 or -7 is to the right of $-7\frac{1}{2}$ and $-7\frac{1}{2}$ is to the right of -7.6.

Fill in the blanks with numbers that correctly complete each of the statements.

12. Three integers between -4 and 0

$$\underline{-3 < -2 < -1}$$

13. Three rational numbers between 16 and 15

$$\underline{15.3 < 15.6 < 15.7}$$

Other answers are possible.

14. Three rational numbers between -1 and -2

$$\underline{-1.9 < -1.55 < -1.02}$$

Other answers are possible.

15. Three integers between 2 and -2

$$\underline{-1 < 0 < 1}$$