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Unit 7, Lesson 4: Ordering Rational Numbers

Let's order rational numbers.

4.1: How Do They Compare?

Use the symbols $>$, $<$, or $=$ to compare each pair of numbers. Be prepared to explain your reasoning.

$12 \underline{\hspace{1cm}} 19$

$212 \underline{\hspace{1cm}} 190$

$15 \underline{\hspace{1cm}} 1.5$

$9.02 \underline{\hspace{1cm}} 9.2$

$6.050 \underline{\hspace{1cm}} 6.05$

$0.4 \underline{\hspace{1cm}} \frac{9}{40}$

$\frac{19}{24} \underline{\hspace{1cm}} \frac{19}{21}$

$\frac{16}{17} \underline{\hspace{1cm}} \frac{11}{12}$

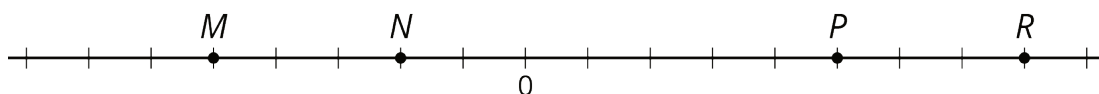
4.2: Ordering Rational Number Cards

Your teacher will give you a set of number cards. Order them from least to greatest.

Your teacher will give you a second set of number cards. Add these to the correct places in the ordered set.

4.3: Comparing Points on A Line

1.



Use each of the following terms at least once to describe or compare the values of points M , N , P , R .

- greater than
- less than
- opposite of (or opposites)
- negative number

2. Tell what the value of each point would be if:

a. P is $2\frac{1}{2}$

b. N is -0.4

c. R is 200

d. M is -15

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Are you ready for more?

The list of fractions between 0 and 1 with denominators between 1 and 3 looks like this:

$$\frac{0}{1}, \frac{1}{1}, \frac{1}{2}, \frac{1}{3}, \frac{2}{3}$$

We can put them in order like this:

$$\frac{0}{1} < \frac{1}{3} < \frac{1}{2} < \frac{2}{3} < \frac{1}{1}$$

Now let's expand the list to include fractions with denominators of 4. We won't include $\frac{2}{4}$, because $\frac{1}{2}$ is already on the list.

$$\frac{0}{1} < \frac{1}{4} < \frac{1}{3} < \frac{1}{2} < \frac{2}{3} < \frac{3}{4} < \frac{1}{1}$$

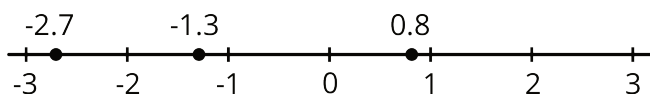
1. Expand the list again to include fractions that have denominators of 5.
2. Expand the list you made to include fractions have have denominators of 6.
3. When you add a new fraction to the list, you put it in between two "neighbors." Go back and look at your work. Do you see a relationship between a new fraction and its two neighbors?

Lesson 4 Summary

To order rational numbers from least to greatest, we list them in the order they appear on the number line from left to right. For example, we can see that the numbers

$$-2.7, -1.3, 0.8$$

are listed from least to greatest because of the order they appear on the number line.



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Unit 7, Lesson 4: Ordering Rational Numbers

1. Select **all** of the numbers that are *greater than* -5.

A. 1.3

B. -6

C. -12

D. $\frac{1}{7}$

E. -1

F. -4

2. Order these numbers from least to greatest: $\frac{1}{2}$, 0, 1, $-1\frac{1}{2}$, $-\frac{1}{2}$, -1

3. Here are the boiling points of certain elements in degrees Celsius:

- Argon: -185.8
- Chlorine: -34
- Fluorine: -188.1
- Hydrogen: -252.87
- Krypton: -153.2

List the elements from least to greatest boiling points.

4. Explain why zero is considered its own opposite.

(from Unit 7, Lesson 2)

5. Explain how to make these calculations mentally.

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a. $99 + 54$

b. $244 - 99$

c. $99 \cdot 6$

d. $99 \cdot 15$

(from Unit 6, Lesson 9)

6. Find the quotients.

a. $\frac{1}{2} \div 2$

b. $2 \div 2$

c. $\frac{1}{2} \div \frac{1}{2}$

d. $\frac{38}{79} \div \frac{38}{79}$

(from Unit 4, Lesson 11)

7. Over several months, the weight of a baby measured in pounds doubles. Does its weight measured in kilograms also double? Explain.

(from Unit 3, Lesson 4)