Name: _____ Date: _____

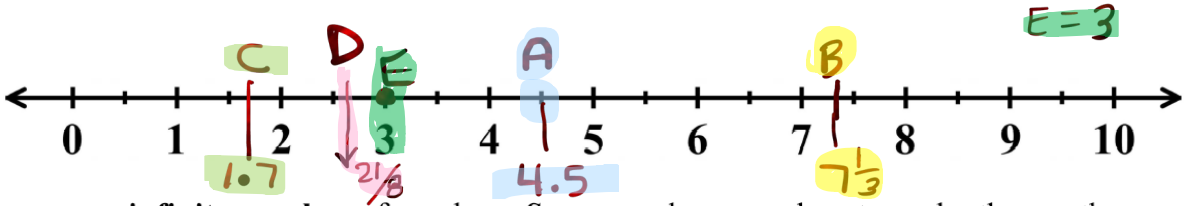
Ordering Rational Numbers

We will complete these together in class. Use these examples to help you with the homework on Khan Academy.

When put together, whole numbers, fractions, and decimals create the **positive**, **rational numbers**. We can locate these numbers on a number line.

***Exercise* #1:** For each of the following numbers, represented by a letter, plot the point on the number line as accurately as you can and label it with its letter.

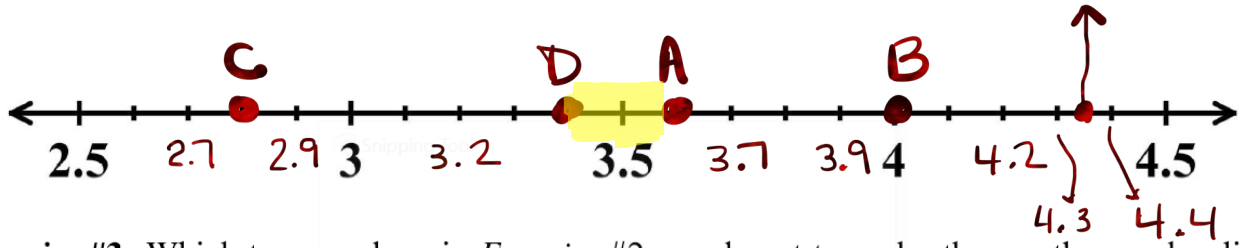
$A = 4.5$ $B = 7\frac{1}{3}$ $C = 1.7$ $D = \frac{21}{8}$ $E = \frac{15}{5}$



There are an **infinite number** of numbers. Some numbers are close to each other on the number line and some are not.

***Exercise* #2:** The portion of the number line between 2.5 and 4.5 has been shown below. Plot each of the following on the number line and label them with their letters.

$A = 3.6$ $B = 4$ $C = 2.8$ $D = 3.4$ $E = 4.35$



***Exercise* #3:** Which two numbers in *Exercise* #2 are closest to each other on the number line? How far apart are they?

D and A are the closest each other.

$3.6 - 3.4 = 0.2$

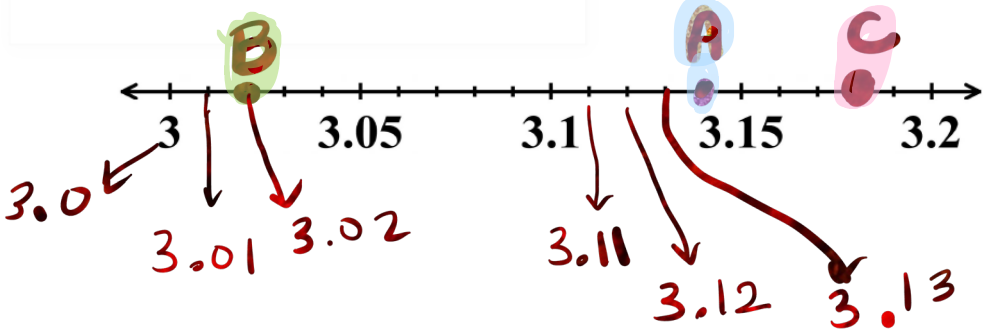
Two Tenths

***Exercise* #4:** You can "zoom-in" on the number line in order to plot numbers with even greater decimal places. Plot the numbers below on the number line shown.

$A = 3.14$

$B = 3.02$

$C = 3.18$



We can compare two numbers by using the greater than symbol, $>$, the less than symbol, $<$, or the equality symbol, $=$.

Exercise #5: For each of the following number pairs, place one of the symbols $>$, $<$, or $=$ in the circle to make the statement true.

(a) $18 \;(>)\; 12$ (b) $8 \;(=)\; \frac{32}{4} = 8$ (c) $1.97 \;(<)\; 2$ (d) $5.2 \;(=)\; 5.200$

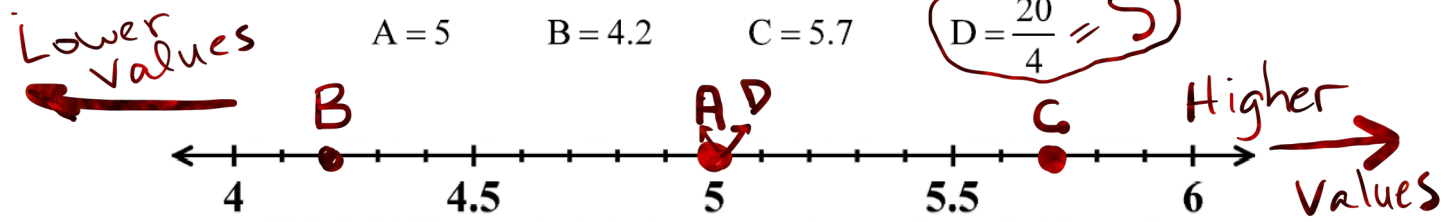
(e) $4.0946 \;(<)\; 4.113$ (f) $\frac{9}{2} \;(<)\; \frac{19}{3}$ (g) $\frac{11}{2} \;(=)\; \frac{33}{6}$ (h) $0.\overline{3} \;(>)\; 0.\overline{32}$

zero one $4.0 < 4.1$ $4\frac{1}{2}$ $6\frac{1}{3}$ $5\frac{1}{2}$ $5\frac{3}{6} = 5\frac{1}{2}$ $0.3333\ldots$ 0.3232

In the next two exercises, we will review an extremely important fact about number comparisons (greater than, less than, equal) and placement on a number line.

Exercise #6: Plot the following four numbers on the number line shown below and label them with their letters. Then, fill in the number comparisons with the greater than, less than, or equal sign.

A = 5 B = 4.2 C = 5.7 $D = \frac{20}{4} = 5$



(a) $5 \;(<)\; 5.7$ (A < C) (b) $5.7 \;(>)\; 4.2$ (C > B) (c) $5 \;(=)\; \frac{20}{4}$

Exercise #7: Fill in the blanks below:

(a) A **greater** number will always be plotted to the RIGHT of a **lesser** number.

(b) A number plotted to the **left** of another number is the LESSER of the two.

(c) Two numbers that are plotted in the same place on a number line are EQUAL.

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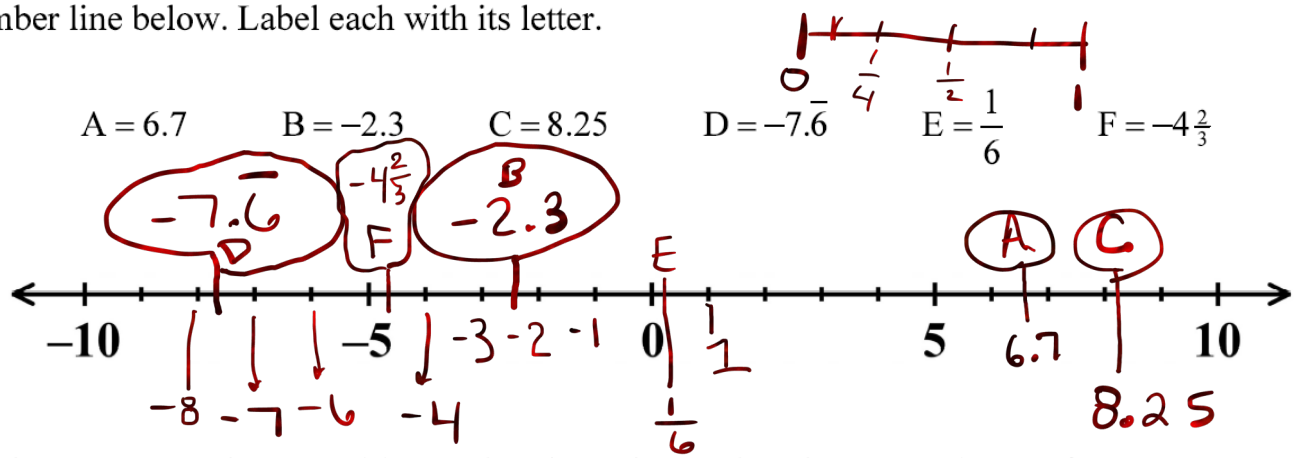
ORDERING RATIONAL NUMBERS
N-GEN MATH® 6

When we combine the positive numbers we have studied with the negative numbers we saw in the last lesson, we have the **rational numbers**. A **rational number** can always be written as a **fraction** or as **a decimal that either terminates or repeats.**

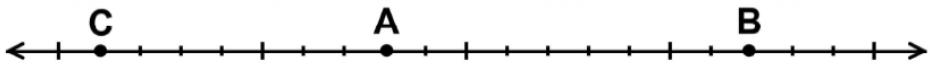
***Exercise* #1:** Plot each of the following rational numbers in their approximate location on the number line below. Label each with its letter.

A = 6.7 B = −2.3 C = 8.25 D = $-7.\overline{6}$ E = $\frac{1}{6}$ F = $-4\frac{2}{3}$



We have compared two positive, rational numbers using the comparisons of **greater than**, **less than**, and **equal**. We can do that as well when we include the negative numbers, but we must remember a very crucial geometric idea about these comparisons.

***Exercise* #2:** An unmarked number line is shown below with three points labeled. Fill in each circle with a greater than sign, >, or a less than sign, <, to make the statement true. Explain why you made your choice.



(a) A (>) C why? Because A is to the right of C on the number line

(b) C (<) B why? Because C is to the left of B on the number

***Exercise* #3:** Fill in the following about two numbers plotted on a horizontal number line.

(a) a number that lies to the **right** of another number is greater than it.

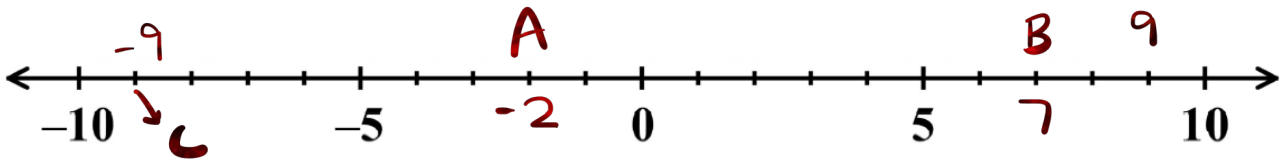
(b) a number that lies to the **left** of another number is less than it.

Spiral Review

Now let's look at how to compare numbers that include negatives.

***Exercise* #4:** Plot the three numbers below on the number line and then fill in the circles with either a greater than or less than symbol. If you get confused, look back at *Exercise* #3.

A = –2 B = 7 C = –9



(a) –2 < 7 (b) –2 > –9 (c) 7 > –9

Why? Because –2 is LEFT of 7

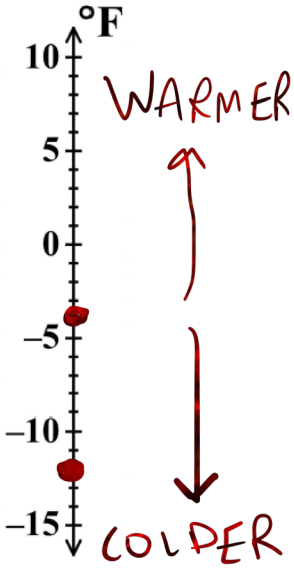
Why? Because –2 is to the RIGHT of –9

Why? Because 7 is to the Right of -9

This can seem strange, especially in (b) above. There is a nice real-world example that illustrates this idea.

***Exercise* #5:** On a very cold winter day, the high temperature in Minneapolis, Minnesota was only –12 °F. In Green Bay, Wisconsin, it was –4 °F as a high.

Plot both temperatures on the number line shown. Label the Minneapolis's temperature M and Green Bay's temperature G.



Which town had the **greater** high temperature?

Green Bay

Write an inequality statement below to justify your answer.

$-4 > -12$

***Exercise* #6:** Place a > or < symbol in each circle below to make the statement true.

(a) –10 < –3 (b) 0 > –5 (c) 6 > –9 (d) –5 < 5

(e) 0 > –100 (f) –11.5 < –3.2 (g) $-5\frac{2}{3} < -1\frac{1}{2}$ (h) 0.01 > –0.1

Positive Negative