

6 Compare and Order Rational Numbers

Key Words

is greater than
($>$)
is less than
($<$)

A number line can be used to help you compare rational numbers. When plotting rational numbers that are in different forms on the same number line, convert the numbers into the same form. A number is always less than a number to its right.

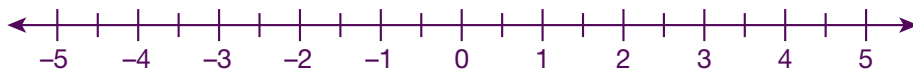
You can use the symbols $<$ and $>$ to compare numbers. The symbol $<$ means **is less than**. The symbol $>$ means **is greater than**.

$\frac{2}{3}$ is greater than $-\frac{1}{4}$, so $\frac{2}{3} > -\frac{1}{4}$.

$-\frac{1}{4}$ is less than $\frac{2}{3}$, so $-\frac{1}{4} < \frac{2}{3}$.

Example

Use the number line to compare $3.\bar{6}$ and $-2\frac{1}{12}$. Use $<$ or $>$.



$3.\bar{6}$ is a positive number, so the point should be plotted to the right of 0.

Convert $-2\frac{1}{12}$ to a decimal.

$$-2\frac{1}{12} = -2.08\bar{3}$$

$-2.08\bar{3}$ is a negative number, so the point should be plotted to the left of 0.

Plot the points for $3.\bar{6}$ and $-2\frac{1}{12}$ on the number line below.



Since $3.\bar{6}$ is to the right of $-2\frac{1}{12}$, it is the greater number.

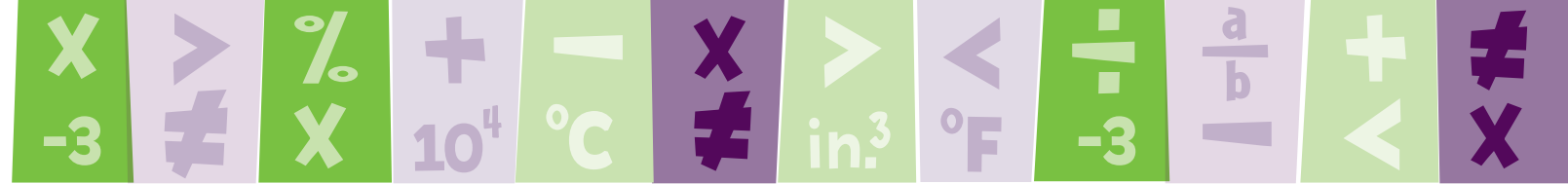
$$3.\bar{6} > -2\frac{1}{12}$$

SKETCH

Draw a number line and plot $\frac{2}{3}$ and $3.\bar{8}$.

Compare the two rational numbers.

Use $<$ or $>$.



Guided Practice

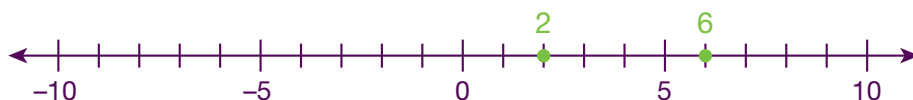
- 1 The low temperatures in a city during a week are shown in the table below.

Day	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Low Temperature (in °C)	6	2	1	-1	-3	-6	-4

Order the temperatures from lowest to highest.

Step 1 Use a number line.

The points for Monday and Tuesday have already been plotted. Plot the points for Wednesday through Sunday.



Step 2 Order the temperatures.

The lowest temperature is farthest to the _____.

The highest temperature is farthest to the _____.

In order from lowest to highest, the temperatures are _____.

- 2 Compare $-\frac{5}{9}$ and -0.45 . Use $<$ or $>$.

Step 1 Convert $-\frac{5}{9}$ to a decimal.

$$-\frac{5}{9} = \underline{\hspace{2cm}}$$

Step 2 Plot the points on a number line.



Step 3 Compare the numbers.

Since $-\frac{5}{9}$ is to the _____ of -0.45 on the number line, $-\frac{5}{9}$ is _____ than -0.45 .

$$-\frac{5}{9} \underline{\hspace{1cm}} -0.45$$

THINK

To convert a fraction to a decimal, divide the numerator by the denominator.