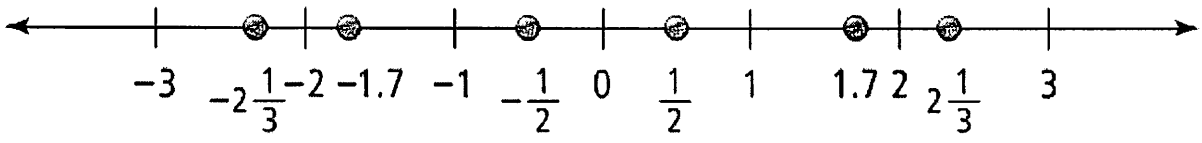
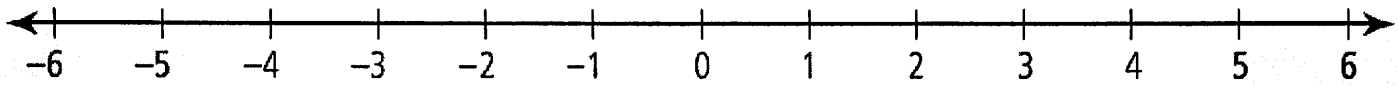
Lesson 9-1: Rational Numbers and the Number Line

Rational numbers are numbers that can be written in the form $\frac{a}{b}$ or $-\frac{a}{b}$, where a is a whole number and b is a positive whole number.

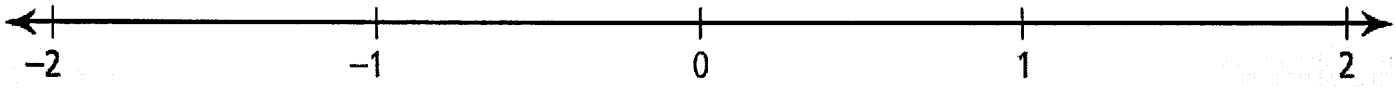


Plot the following rational numbers on the number line.

$$1.6,\ -6.85,\ -2.8,\ -0.4,\ 3.125,\ 0.9$$



$$-\frac{7}{8},\ \frac{1}{4},\ -\frac{2}{3},\ \frac{4}{5},\ -1\frac{1}{2},\ \frac{7}{4}$$



Example

Explain what the number 0 represents in each situation.
Then write a rational number to represent the situation.

a. The pant legs shrunk $\frac{2}{3}$ inch after washing. _____

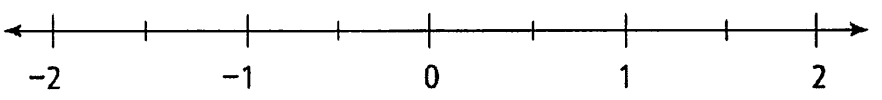
b. Dad gained $1\frac{1}{4}$ pounds during vacation. _____

c. It is 10 seconds before blastoff. _____

Lesson 9-2: Comparing Rational Numbers

Example

Use the points and the number line to plot the rational numbers given in each problem below. Then use an inequality sign to compare each pair of numbers.



a. $1.1 \quad 1\frac{1}{6}$ **b.** $-1\frac{1}{3} \quad -1.6$ **c.** $-0.75 \quad -\frac{2}{3}$

d. $\frac{1}{4} \quad 0.35$ **e.** $-\frac{2}{3} \quad -\frac{4}{3}$ **f.** $\frac{1}{4} \quad -0.75$

Example

Compare each pair.

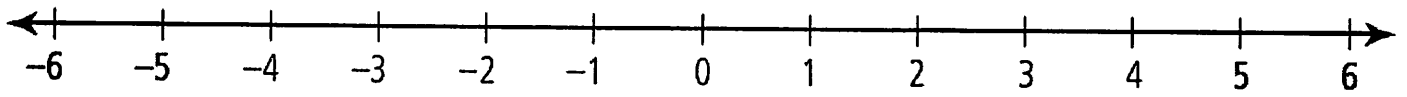
a. $|1.25| \quad \left|1\frac{1}{2}\right|$ **b.** $\left|-\frac{1}{3}\right| \quad |-0.67|$

c. $\left|1\frac{1}{2}\right| \quad \left|-1\frac{1}{2}\right|$ **d.** $\left|-1\frac{1}{2}\right| \quad |-1.8|$

e. $\left|\frac{1}{2}\right| \quad \left|-\frac{1}{3}\right|$ **f.** $|-1.8| \quad |0|$

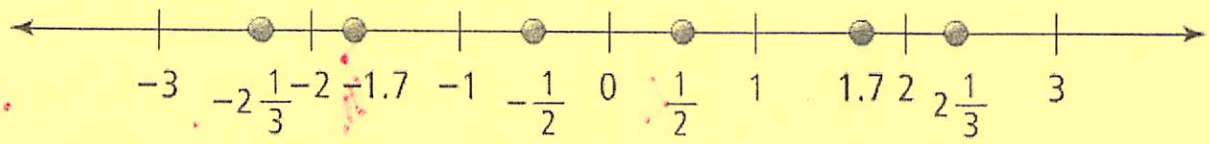
Plot the following rational numbers on the number line.

$$-1.4,\ \frac{5}{2},\ \left|-3\frac{1}{2}\right|,\ 4.065,\ \frac{9}{10},\ 1\frac{2}{3},\ -|0.25|,\ -\frac{20}{4}$$



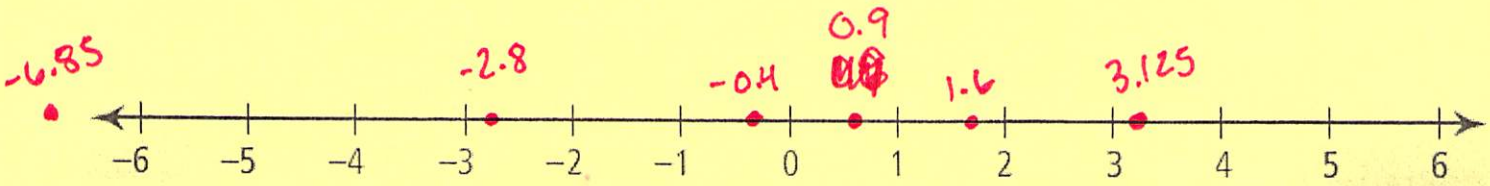
Lesson 9-1: Rational Numbers and the Number Line

Rational numbers are numbers that can be written in the form $\frac{a}{b}$ or $-\frac{a}{b}$, where a is a whole number and b is a positive whole number.

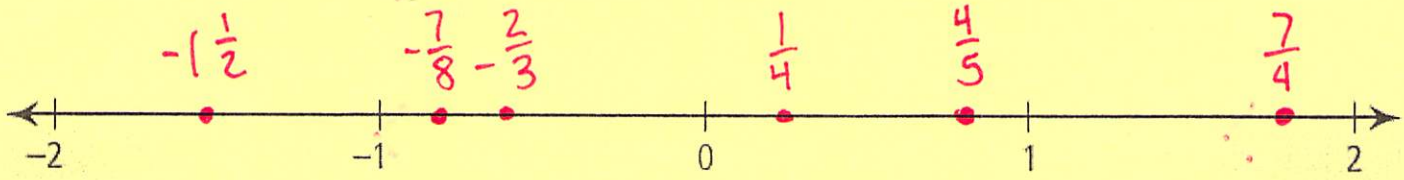


Plot the following rational numbers on the number line.

$$1.6,\ -6.85,\ -2.8,\ -0.4,\ 3.125,\ 0.9$$



$$-\frac{7}{8},\ \frac{1}{4},\ -\frac{2}{3},\ \frac{4}{5},\ -1\frac{1}{2},\ \frac{7}{4}$$



Example

Explain what the number 0 represents in each situation.
Then write a rational number to represent the situation.

a. The pants legs shrunk $\frac{2}{3}$ inch after washing. Pant length before washing

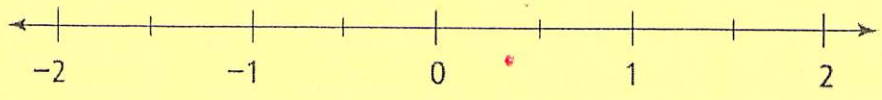
b. Dad gained $1\frac{1}{4}$ pounds during vacation. Weight before Vacation

c. It is 10 seconds before blastoff. Blastoff.

Lesson 9-2: Comparing Rational Numbers

Example

Use the points and the number line to plot the rational numbers given in each problem below. Then use an inequality sign to compare each pair of numbers.



a. $1.1 < 1\frac{1}{6}$ b. $-1\frac{1}{3} > -1.6$ c. $-0.75 < -\frac{2}{3}$

d. $\frac{1}{4} < 0.35$ e. $-\frac{2}{3} > -\frac{4}{3}$ f. $\frac{1}{4} > -0.75$

Example

Compare each pair.

a. $|1.25| < \left|1\frac{1}{2}\right|$

b. $\left|-\frac{1}{3}\right| < |-0.67|$ ($\frac{1}{3}$ = 0.67)

c. $\left|1\frac{1}{2}\right| = \left|-1\frac{1}{2}\right|$

d. $\left|-1\frac{1}{2}\right| < |-1.8|$ (1.5 < 1.8)

e. $\left|\frac{1}{2}\right| > \left|-\frac{1}{3}\right|$

f. $|-1.8| > |0|$

Plot the following rational numbers on the number line.

A B C D E F G H

$$-1.4,\ \frac{5}{2},\ \left|-3\frac{1}{2}\right|,\ 4.065,\ \frac{9}{10},\ 1\frac{2}{3},\ -|0.25|,\ -\frac{20}{4}$$