Topic 2   Comparing Numbers

On a number line, numbers to the left are less than numbers to the right. Numbers to the right are greater than numbers to the left.
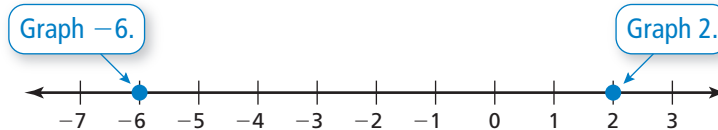
EXAMPLE 1   Comparing Integers

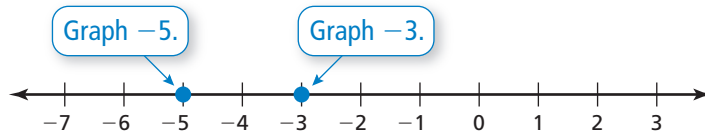a. **Compare 2 and −6.**

Graph −6.   Graph 2.

$$-7 \quad -6 \quad -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3$$

> **Remember**
>
> The symbol < means "is less than" and the symbol > means "is greater than."

   2 is to the right of −6. So, $2 > -6$.

b. **Compare −5 and −3.**

Graph −5.   Graph −3.

$$-7 \quad -6 \quad -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3$$

   −5 is to the left of −3. So, $-5 < -3$.

EXAMPLE 2   Comparing Decimals

Compare −3.08 and −3.8.

Graph −3.8.   Graph −3.08.

$$-4 \quad -3.9 \quad -3.8 \quad -3.7 \quad -3.6 \quad -3.5 \quad -3.4 \quad -3.3 \quad -3.2 \quad -3.1 \quad -3$$
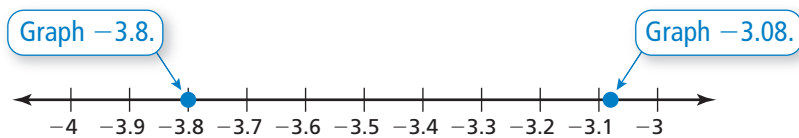
   −3.08 is to the right of −3.8. So, $-3.08 > -3.8$.

🟢 Practice

Copy and complete the statement using < or >.

1. $0 \quad\boxed{\phantom{<}}\quad -4$
2. $-5 \quad\boxed{\phantom{<}}\quad 5$
3. $-8 \quad\boxed{\phantom{<}}\quad -7$
4. $-0.5 \quad\boxed{\phantom{<}}\quad 0.3$
5. $-2 \quad\boxed{\phantom{<}}\quad -0.2$
6. $-3.24 \quad\boxed{\phantom{<}}\quad -3.42$

7. **TEMPERATURE** The freezing temperature of nitrogen is −210°C and the freezing temperature of oxygen is −223°C. Which temperature is warmer?

EXAMPLE **3** **Comparing Fractions and Mixed Numbers**

a. Compare $-\dfrac{1}{2}$ and $-\dfrac{3}{4}$.

Graph $-\dfrac{3}{4}$. Graph $-\dfrac{1}{2}$.

$-1 \quad -\dfrac{3}{4} \quad -\dfrac{1}{2} \quad -\dfrac{1}{4} \quad 0$
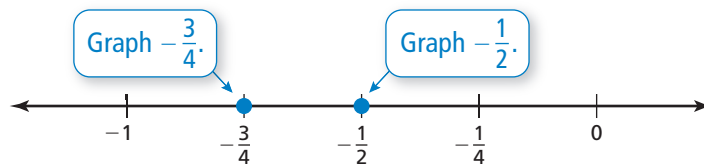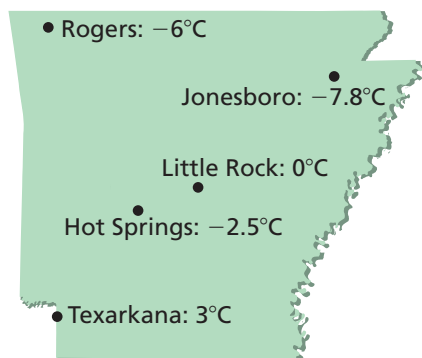
$-\dfrac{1}{2}$ is to the right of $-\dfrac{3}{4}$. So, $-\dfrac{1}{2} > -\dfrac{3}{4}$.

b. Compare $-4\dfrac{5}{6}$ and $-4\dfrac{1}{6}$.

Graph $-4\dfrac{5}{6}$. Graph $-4\dfrac{1}{6}$.

$-5 \quad -4\dfrac{5}{6} \quad -4\dfrac{4}{6} \quad -4\dfrac{3}{6} \quad -4\dfrac{2}{6} \quad -4\dfrac{1}{6} \quad -4$
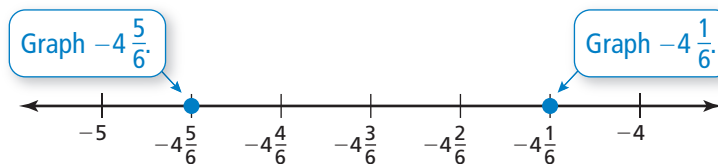
$-4\dfrac{5}{6}$ is to the left of $-4\dfrac{1}{6}$. So, $-4\dfrac{5}{6} < -4\dfrac{1}{6}$.

EXAMPLE **4** **Real-Life Application**

• Rogers: −6°C

Jonesboro: −7.8°C

Little Rock: 0°C

Hot Springs: −2.5°C

• Texarkana: 3°C

The diagram shows a day's low temperatures for several cities in Arkansas. Which city had the coldest low temperature?

Graph each temperature on a number line.

Jonesboro Rogers Hot Springs Little Rock Texarkana

$-8 \quad -7 \quad -6 \quad -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$

−7.8 is farthest to the left on the number line.
So, Jonesboro had the coldest low temperature.

Practice

Copy and complete the statement using < or >.

8. $\dfrac{2}{3}$ ▢ -2

9. $-\dfrac{4}{7}$ ▢ $-\dfrac{1}{7}$

10. $-1\dfrac{2}{3}$ ▢ $-1\dfrac{5}{6}$

Order the numbers from least to greatest.

11. $0, \ -1, \ 2, \ 3, \ -3$

12. $-7.2, \ 2.1, \ 6.8, \ -4.1, \ 3.5$

13. $1\dfrac{3}{4}, \ \dfrac{1}{2}, \ -3\dfrac{1}{4}, \ -\dfrac{5}{4}, \ -\dfrac{3}{2}$