

# 2.5

## Solving Compound Inequalities

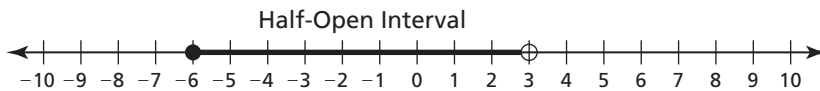
For use with Exploration 2.5

**Essential Question** How can you use inequalities to describe intervals on the real number line?

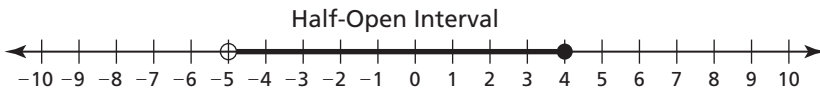
### 1 EXPLORATION: Describing Intervals on the Real Number Line

Work with a partner. In parts (a)–(d), use two inequalities to describe the interval.

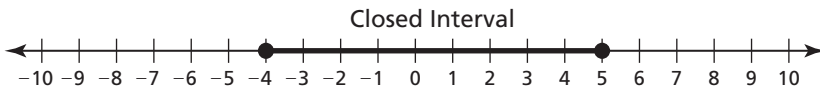
a.



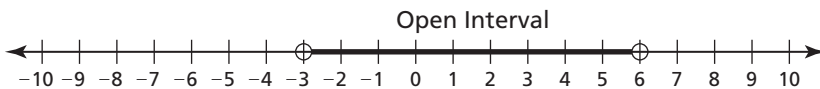
b.



c.



d.

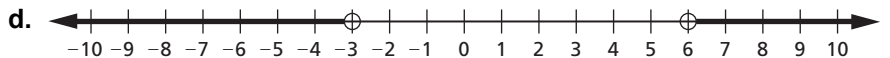
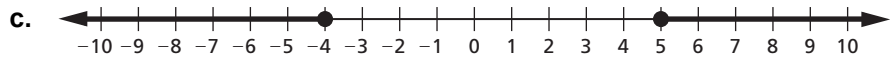
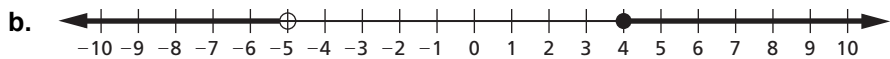
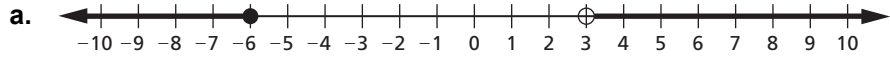


e. Do you use “and” or “or” to connect the two inequalities in parts (a)–(d)? Explain.

**2.5 Solving Compound Inequalities (continued)**

**2 EXPLORATION: Describing Two Infinite Intervals**

Work with a partner. In parts (a)–(d), use two inequalities to describe the interval.



e. Do you use “and” or “or” to connect the two inequalities in parts (a)–(d)? Explain.

**Communicate Your Answer**

3. How can you use inequalities to describe intervals on the real number line?

## 2.5

### Notetaking with Vocabulary

For use after Lesson 2.5

In your own words, write the meaning of each vocabulary term.

compound inequality

**Notes:**

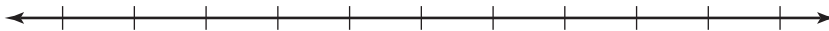
**2.5** Notetaking with Vocabulary (continued)**Extra Practice**

In Exercises 1–5, write the sentence as an inequality. Graph the inequality.

1. A number  $u$  is less than 7 and greater than 3.



2. A number  $d$  is less than  $-2$  or greater than or equal to 2.



3. A number  $s$  is no less than  $-2.4$  and fewer than 4.2.



4. A number  $c$  is more than  $-4$  or at most  $-6\frac{1}{2}$ .



5. A number  $c$  is no less than  $-1.5$  and less than 5.3.



**2.5** Notetaking with Vocabulary (continued)

In Exercises 6–10, solve the inequality. Graph the solution.

6.  $4 < x - 3 \leq 7$



7.  $15 \geq -5g \geq -10$



8.  $z + 4 < 2$  or  $-3z < -27$



9.  $2t + 6 < 10$  or  $-t + 7 \leq 2$



10.  $-8 \leq \frac{1}{3}(6x + 24) \leq 12$



11. A certain machine operates properly when the relative humidity  $h$  satisfies the inequality  $-60 \leq 2(h - 50) \leq 60$ . Solve for  $h$  to find the range of values for which the machine operates properly.