



## Writing a Compound Inequality

### • Example 1

Express “5 is greater than or equal to  $x$  and 2 is less than or equal to  $x$ ” as one algebraic expression. Note that the phrase is made up of two statements joined by “AND.”

Since 5 is greater than or equal to  $x$  we have  $5 \geq x$  or  $x \leq 5$ . Also, 2 is less than or equal to  $x$ , giving  $2 \leq x$ . Combining these two inequalities because they must both be satisfied, we have

$$2 \leq x \text{ AND } x \leq 5$$

or, in abbreviated form,

$$2 \leq x \leq 5.$$

### ● ● ● CHECK YOURSELF 1

Express “2 is more than  $x$  and  $-3$  is less than  $x$ ” as one algebraic expression.

---

### ● ● ● CHECK YOURSELF ANSWER

1.  $-3 < x < 2$ .

---

# 1.7 Exercises

Name \_\_\_\_\_

Section \_\_\_\_\_

Date \_\_\_\_\_

## A N S W E R S

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

Write the following compound inequalities as algebraic expressions.

1. 10 is greater than or equal to  $x$  and 0 is less than or equal to  $x$ .

2.  $-5$  is less than  $x$  and  $-2$  is more than  $x$ .

3. 0 is greater than  $x$  and  $-15$  is less than  $x$ .

4. 25 is less than or equal to  $x$  and 75 is greater than  $x$ .

5. 4 is greater than  $x$  and  $-2$  is less than or equal to  $x$ .

6. 12 is less than  $x$  and 69 is greater than or equal to  $x$ .

7.  $-5$  is greater than or equal to  $x$  and  $-82$  is less than or equal to  $x$ .

8.  $-4$  is less than  $x$  and  $x$  is less than or equal to 4.