Name: _____ Date: _____

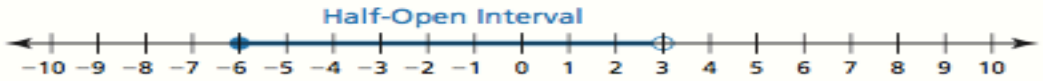
2.5 Solving Compound Inequalities

Essential Question: _____

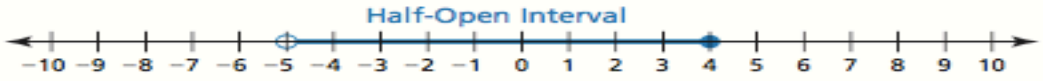
EXPLORATION 1 Describing Intervals on the Real Number Line

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

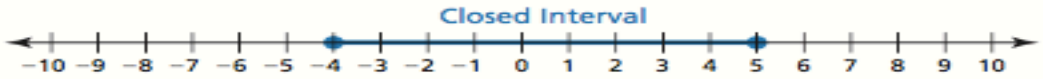
a.



b.



c.



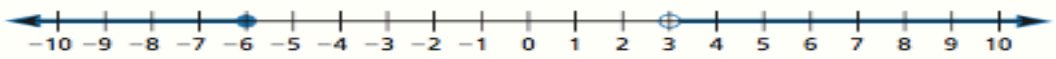
d.

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

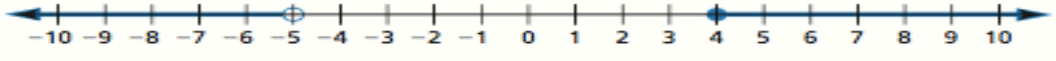
EXPLORATION 2 Describing Two Infinite Intervals

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

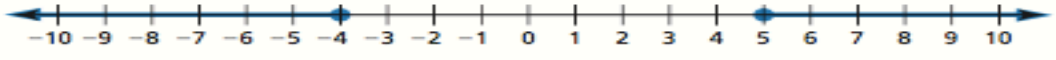
a.



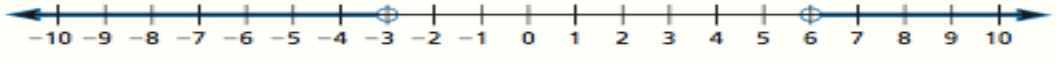
b.



c.



d.



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

A compound inequalitiy is an _____ formed by joinining two inequalities with the work

_____ or the work _____.

The graph of a compound inequalitiy with the word "and" used is the _____ of the two graphs of the inequalities.

The graph of a compound inequalitiy with the word "or" is the _____ of the graphs of the inequalitites.

EXAMPLE 1 Writing and Graphing Compound Inequalities

Write each sentence as an inequality. Graph each inequality.

a. A number x is greater than -8 and less than or equal to 4.

b. A number y is at most 0 or at least 2.

When a compound inequality with "and" is written as a single inequality, you can solve the inequality by performing the _____ _____ on each expression.

EXAMPLE 2 Solving Compound Inequalities with "And"

Solve each inequality. Graph each solution.

a. $-4 < x - 2 < 3$ **b.** $-3 < -2x + 1 \leq 9$

Extra Example

***-3 < x + 1 < 5** ***-7 < -3w - 4 ≤ 2**

EXAMPLE 3 Solving a Compound Inequality with "Or"

Solve $3y - 5 < -8$ *or* $2y - 1 > 5$. Graph the solution.