Algebra 1

1-6 Compound Inequalities

Name _____

Date _____ **A#13**

Goal: Write and solve compound inequalities

Warm Up: Hana has some blue paint. She wants to lighten the shade, so she mixes in 1 cup of white paint. The color is still too dark, so Hana keeps mixing in 1 cup of white paint at a time. After adding 4 cups, she decides the color is too light.

a. Explain in words how much paint Hana should have added initially to get the shade she wants.

b. Represent your answer to part A with one or more inequalities.
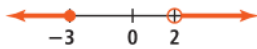
Example 1: Write a compound inequality that represents each situation. Graph the solution.

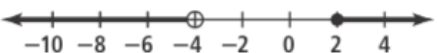| a. The books were priced between $3.50 and $6.00, inclusive.	b. At a local amusement park, if a patron is younger than 12 or older than 55, then he/she will pay a discount rate.

Try It! Write a compound inequality that represents each situation. Graph the solution.

1. A tropical storm has wind speed of at least 40 mph but not more than 74 mph.	2. All real numbers less than 4 or greater than 11.

Example 2: How can you use inequalities to describe the set of numbers graphed?

a.	b.

Try It!: How can you use inequalities to describe the set of numbers graphed?

1.	2.

1

Example 3: Solve the compound inequality. Graph and check the solution.

a. $5-m>4$ or $7m>35$ b. $5x-7<13$ or $-4x+3>11$

Try It! Solve the compound inequality. Graph and check the solution.

1. $t+4\leq-3$ or $-\dfrac{t}{4}<5$ 2. $6b-1\leq41$ or $2b+1\geq11$

Example 4: Solve the compound inequality. Graph and check the solution.

a. $-12\leq7x+9<16$ b. $3>\dfrac{11+k}{4}\geq-3$

Try It! Solve the compound inequality. Graph and check the solution.
1. $3<2p-3\leq12$ 2. $-2(x+1)<4$ and $4x+1\leq-3$

Example 5: Enrique plans a diet for his dog, River. River consumes between 510

and 540 calories per day. If River eats $1\frac{1}{2}$ servings

of dog food each day, how many treats can she
have?

320 calories per serving   15 calories per treat

Try It! Suppose River has new treats that are 10 calories each. How many of the
new treats can she have and remain in her calorie range?

Try It! A family is comparing different car seats. One car seat is designed for a
child up to and including 30 lb. Another car seat is designed for a child between 15
lb and 40 lb. A third car seat is designed for a child between 30 lb and 85 lb,
inclusive. Model these ranges on a number line. Which car seats are appropriate for
a 32-lb child?