MYP Algebra I - Level 4   Name _____
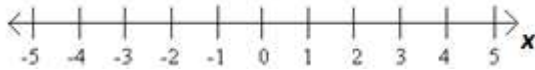
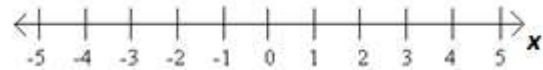Warm Up – Lesson 15 - Day 2   Date _____

Warm-Up

Graph each compound sentence on a number line.
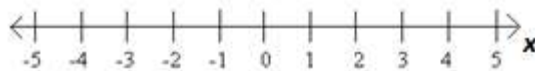
a. $x = 2$ or $x > 6$

b. $x \leq -5$ or $x \geq 2$

Rewrite as a compound sentence and graph the sentence on a number line.

c. $1 \leq x \leq 3$

Lesson

Exercise 1

Determine if each sentence is true or false. Explain your reasoning.

a. $8 + 6 \leq 14$ and $\frac{1}{3} < \frac{1}{2}$.

b. $5 - 8 < 0$ or $10 + 13 \neq 23$

Solve each system and graph the solution on a number line.

c. $x - 9 = 0$ or $x + 15 = 0$

d. $5x - 8 = -23$ or $x + 1 = -10$

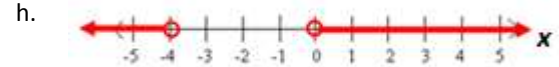Graph the solution set to each compound inequality on a number line.

e. $x < -8$ or $x > -8$

f. $0 < x \leq 10$

November 2, 2013

Write a compound inequality for each graph.

g.

h.

i. A poll shows that a candidate is projected to receive 57% of the votes. If the margin for error is plus or minus **3**%, write a compound inequality for the percentage of votes the candidate can expect to get.

j. Mercury is one of only two elements that is liquid at room temperature. Mercury is non-liquid for temperatures less than -38.0°F or greater than 673.8°F. Write a compound inequality for the temperatures at which mercury is non-liquid.

Name _____

Exercise 2

Consider the following two scenarios. For each, specify the variable and say, "W is the width of the rectangle," for example and write a compound inequality that represents the scenario given. Draw its solution set on a number line.

Scenario	Variable	Inequality	Graph
a. Students are to present a persuasive speech in English class. The guidelines state that the speech must be at least 7 minutes but not exceed 12 minutes.			
b. Children and senior citizens receive a discount on tickets at the movie theater. To receive a discount, a person must be between the ages of 2 and 12, including 2 and 12, or 60 years of age or older.			

Lesson Summary

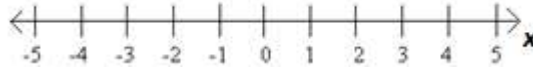In mathematical sentences, like in English sentences, a compound sentence separated by

AND is true if _____.
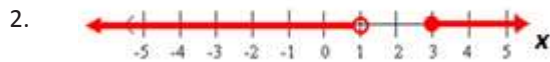
OR is true if _____.

November 2, 2013

Problem Set

1. Consider the inequality $0 < x < 3$.

    a. Rewrite the inequality as a compound sentence.

    b. Graph the inequality on a number line.

    c. If the inequality is changed to $0 \leq x \leq 3$, then what are the largest and smallest possible values for x?

Write a compound inequality for each graph.

2.

3.

Write a single or compound inequality for each scenario.

4. The scores on the last test ranged from 65% to 100%.

5. To ride the roller coaster, one must be at least 4 feet tall.

6. Unsafe body temperatures are those lower than 96°F or above 104°F.

Graph the solution(s) to each of the following on a number line.

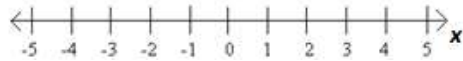7. $x - 4 = 0$ and $3x + 6 = 18$ 8. $x < 5$ and $x \neq 0$

November 2, 2013
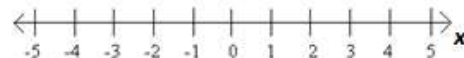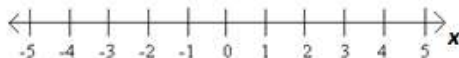
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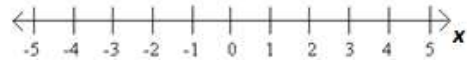
Lesson 15 –Day 2

Problem Set (Continued)
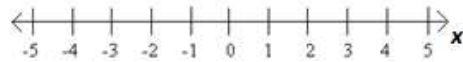
9. $x \leq -8$ or $x \geq -1$

10. $3(x - 6) = 3$ or $5 - x = 2$

11. $x < 9$ and $x > 7$

12. $x + 5 < 7$ or $x = 2$

November 2, 2013