HW Answers

1) 2: $8p \geq 78$

2) 4: $75d + 30c \geq 255$

4) 4: $(0.75)(200) + 1.25x \geq 250.00$

5) 2: $30 + 2w \leq 50$

5) prom: The minimum number of weeks is 7.

6) Chelsea: She can play the game a maximum of 15 times.

5) Mr. Braun: The maximum number of pizzas is 5.

6) Eye Surgery: The Institute must perform 345 surgeries.

7) $b \geq 12$ 8) $k > -8$ 9) $x < 11$ 10) $n \leq -1$

5) p = max # of pizzas

drinks = $5p$

$9p + 5p(.75) \leq 75$

$9p + 3.75p \leq 75$

$\frac{12.75p}{12.75} \leq \frac{75}{12.75}$

$p \leq 5.9$

The number of pizzas is 5.

6) x = max # of times she can play

$20 + 15 + .65x \leq 45$

$35 + .65x \leq 45$

$-35 \quad\quad -35$

$.65x \leq 10$

$\frac{.65x}{.65} \leq \frac{10}{.65}$

$x \leq 15.4$

15 games

6) t = times machine used

$2000 - 550t \geq 500{,}000$

$\frac{1450t}{1450} \geq \frac{500{,}000}{1450}$

$t > 344.8$

345 times

Mini Quiz: 15 Minutes

November 18th

Due Today: HW 4.2
Due Next Class: Video 4.3 +HW 4.3

Unit 4: Inequalities
Lesson 4.3: Compound Inequalities

Get Ready: Determine whether each of these whole statements are true or false.

1. $(8 = 8)$ and $(5 < 6)$

2. $(3 < 9)$ or $(10 = 9)$

3. $(10 + 2 < 12)$ and $(8 - 3 > 0)$

4. $(16 - 20 > 5 - 4)$ or $(6 + 4 \geq 9 + 2)$

1. $(8 = 8)$ and $(5 < 6)$

T T

True

2. $(3 < 9)$ or $(10 = 9)$

T F

True

3. $(10 + 2 < 12)$ and $(8 - 3 > 0)$

F T

False

4. $(16 - 20 > 5 - 4)$ or $(6 + 4 \geq 9 + 2)$

$-4 > 1$ $10 \geq 11$

F F

False

AND: both must be true

OR: at least one has to be true

Compound Inequalities

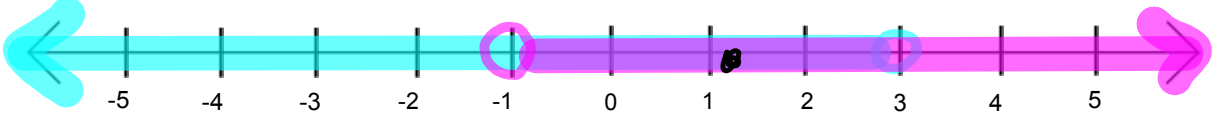
Compound inequality: an inequality made up of TWO regular inequalities

Compound AND Inequalities

1. Graph $x < 3$ on a number line in blue.

2. Graph $x > -1$ on the same number line in red.

3. Highlight the section of the number line where $x < 3$ **and** $x > -1$ in green.



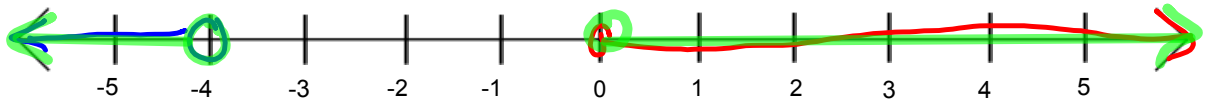
$x = 1, 0$

Compound OR Inequalities

1. Graph $x < -4$ on a number line in blue.

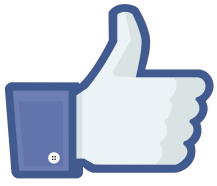
2. Graph $x > 0$ on the same number line in red.

3. Highlight the section of the number line where $x < -4$ **or** $x > 0$ in green.



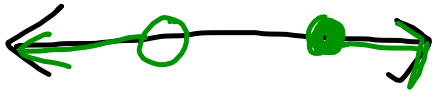
$x = -5, 4$

General Rule of Thumb



And: Shade In

Or: Shade Out



Practice: Graph these

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

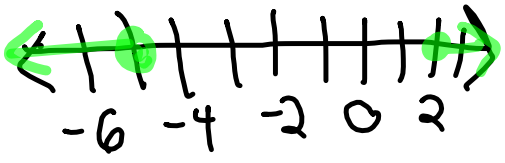
2. $x > 1$ and $x \leq 3$

3. $x > 0$ and $x < 10$

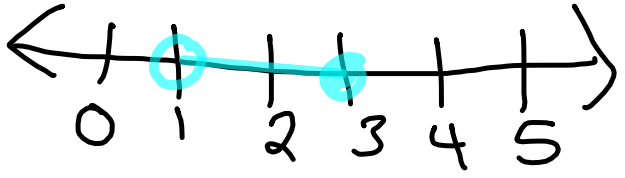
4. $x < -4$ or $x \geq 0$

Practice: Graph these

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

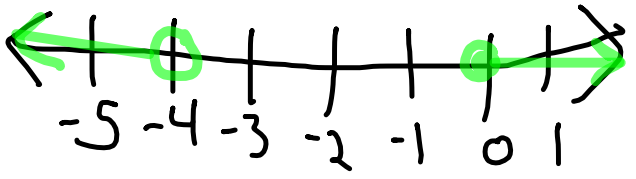


2. $x > 1$ and $x \leq 3$



3. $x > 0$ and $x < 10$

4. $x < -4$ or $x \geq 0$

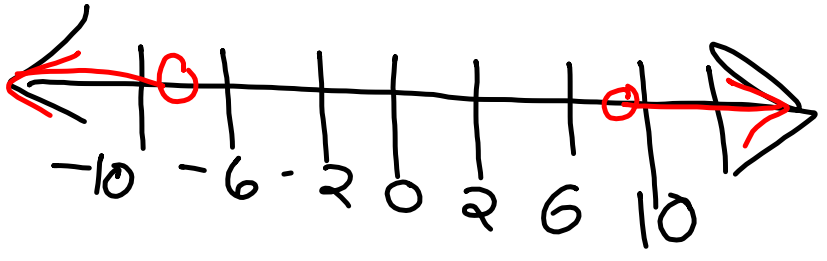


Solving Compound Inequalities

$-9 + p < -17$ or $4p > 36$

$+9 \quad +9 \quad \div 4 \quad \div 4$

$p < -8$ or $p > 9$



Solving Compound Inequalities

$-9p \geq -63$ and $p - 6 \geq -9$

Practice: Solve and Graph

1. $-8x \leq -24$ or $x + 1 \leq -9$

2. $3 - 3v > -27$ and $10v + 2 \geq 92$

Define a variable, write an inequality that models the situation, and graph.

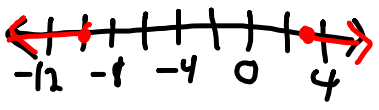
3. Students are to present a persuasive speech in English class. The guidelines state that the speech must be at least 7 minutes but not exceed 12 minutes.

4. Children and senior citizens receive a discount on tickets at the movie theater. To receive a discount, a person must be younger than 13 or 60 years old or older.

1. $-8x \leq -24$ or $x + 1 \leq -9$

$\div -8 \quad \div -8$ or $-1 \quad -1$

$x \geq 3$ or $x \leq -10$

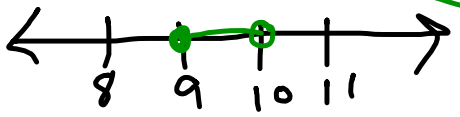


2. $3 - 3v > -27$ and $10v + 2 \geq 92$

$-3 \quad -3$ and $-2 \quad -2$

$\frac{-3v}{-3} > \frac{-30}{-3}$ $\quad \frac{10v}{10} \geq \frac{90}{10}$

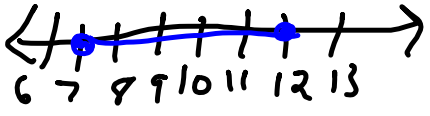
$v < 10$ and $v \geq 9$



3. 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.

m = # of minutes

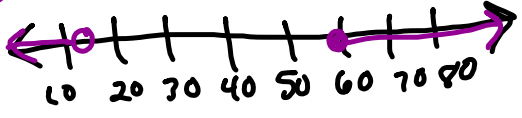
$m \geq 7$ and $m \leq 12$



4. Children and senior citizens receive a discount on tickets at the movie theater. To receive a discount, a person must be younger than 13 or 60 years old or older.

a = age to receive discount

$a < 13$ or $a \geq 60$



Topic:

Compand Inequalities

Summary:

Due Next Time: HW 4.3 Video 4.3