

Warm-ups:
 Checkpoint Quiz 1: Lessons 4-1 through 4-3 p.217 (1-10)

Solve each inequality. Graph your solution.

1. $6 < c + 1$
 $-1 \quad |$
 $5 < c < 11$
 rewrite $2 \ 4 \ 6$
 $c > 5$

2. $5x < -30$
 $\frac{5x}{5} < \frac{-30}{5}$
 $x < -6$

$3. \frac{p}{5} \leq -2.3$
 $p < -10$

Oct 9-4:52 AM

Solve each inequality. Graph your solution.

4. $y - 4 \geq -2$ 5. $12 + g < 4$ 6. $-3b \geq 15$

x

Oct 9-4:58 AM

7. Determine whether each of the following is a solution of $x + 7 \leq 3$.

a. -4 b. 0 c. $-\frac{17}{4}$ d. -3.9

8. Determine whether each of the following is a solution of $-4x < -12$.

a. 3 b. 0 c. $\frac{7}{3}$ d. π

Oct 9-4:58 AM

Write and solve an inequality that models each situation.

9. You plan to buy a bicycle that will cost at least \$180. You have saved \$38 and your parents have given you \$50.

a. Write an inequality to find how much more money m you need to save.
 b. Solve your inequality.

Oct 9-4:59 AM

10. Your local garden shop has plants on sale for \$1.50 each. You are planning a vegetable garden. You have \$20 to spend on tomato plants.
 a. Write an inequality to find the greatest number of plants p you can buy.
 b. What is the greatest number of plants you can buy?

20, 4, 36

$$\textcircled{4} \quad h + 2(3h + 4) \geq 1$$

$$h + 2 \cdot 3h + 2 \cdot 4 \geq 1$$

$$\underline{1h + 6h + 8} \geq 1$$

$$7h + 8 \geq 1$$

$$\begin{array}{r} -8 \\ -8 \end{array}$$

$$\underline{7h} \geq -7$$

$$\underline{h} \geq -1$$

Oct 9-4:59 AM

Oct 10-6:38 AM

$$\textcircled{20} \quad 5(6) + 4n \leq 62$$

$$\begin{array}{r} 30 + 4n \leq 62 \\ -30 \quad -30 \end{array}$$

$$\underline{\frac{4n}{4}} \leq \underline{\frac{32}{4}}$$

$$\underline{n \leq 8}$$

$$\textcircled{36} \quad \frac{1}{2}(2g + 4) > -7$$

$$\frac{1}{2} \cdot 2g + \frac{1}{2} \cdot 4 > -7$$

$$\begin{array}{r} g + 2 > -7 \\ -2 \quad -2 \end{array}$$

$$\underline{g > -9}$$

Oct 10-6:43 AM

Lesson 4-5 Day 32 10/10 Compound Equalities	
Lesson Objectives ▼ Solve and graph inequalities containing <i>and</i> ▼ Solve and graph inequalities containing <i>or</i>	NAEP 2005 Strand: Algebra Topics: Variables, Expressions, and Operations; Equations and Inequalities Local Standards: <u>P.76</u>
Vocabulary A compound inequality is <u>2 inequalities that are combined with the word "and" or "or".</u>	

Oct 9-4:59 AM

Examples

1. **Writing a Compound Inequality** Write two compound inequalities that represent each situation. Graph the solutions.

a. all real numbers that are at least -1 and at most 3

$b \geq -1$ and $b \leq 3$

Smaller # $-1 \leq b \leq 3$ ← bigger #

less than: $<$
 at least: \geq
 at most: \leq
 more than: $>$
 between: $\# < x < \#$
 between inclusive: $\# \leq x \leq \#$

$-1 \leq b \leq 3$
 shade in middle

Oct 9-4:59 AM

b. all real numbers that are less than 31 (but) greater than 25

$n < 31$ and $n > 25$
 $25 < n < 31$

Oct 9-5:04 AM

2. **Solving a Compound Inequality Containing And** Solve $5 > 5 - f > 2$. Graph the solutions.

Write the compound inequality as two inequalities joined by \square

$5 > 5 - f$ $5 - f > 2$

$5 - 5 > 5 - f - 5$ $5 - f - 5 > 2 - 5$

$\square > -f$ $-f > \square$

$\frac{0}{-1} \square \frac{-f}{-1}$ $\frac{-f}{-1} \square \frac{-3}{-1}$

$0 < \square$ $f < \square$

$\square < f < \square$

$5 > 5 - f > 2$
 $-5 \quad -5 \quad -5$

$0 > -f > -3$
 $-1 \quad -1 \quad -1$

$0 < f < 3$

Oct 9-5:04 AM

3. **Writing Compound Inequalities** Write an inequality that represents the situation. Graph the solutions.

all real numbers that are less than 0 or greater than 3

$n < 0$ or $n > 3$

99% of the time
 "OR" get shaded outward
 "AND" shade between

Oct 9-5:04 AM

4. Solving a Compound Inequality Containing Or Solve the compound inequality $3x + 2 < -7$ or $-4x + 5 < 1$. Graph the solutions.

$$\begin{array}{l} 3x + 2 < -7 \\ \underline{-2 \quad -2} \\ 3x < -9 \\ \underline{\quad \quad \quad} \\ x < -3 \end{array} \quad \text{or} \quad \begin{array}{l} -4x + 5 < 1 \\ \underline{-5 \quad -5} \\ -4x < -4 \\ \underline{\quad \quad \quad} \\ x > 1 \end{array}$$

$x < -3$ OR $x > 1$

Oct 9-5:05 AM

Quick Check AND

1. Write a compound inequality that represents each situation. Graph the solutions.

a. all real numbers greater than -2 but less than 9

$n > -2$ and $n < 9$

b. The books were priced between \$3.50 and \$6.00, inclusive.

$3.50 \leq n \leq 6$

$n \geq 3.50$
and
 $n \leq 6$

Oct 9-5:05 AM

2. Solve each inequality. Graph your solutions:

a. $-6 \leq 3x < 15$

$-2 \leq x < 5$

b. $-3 < 2x - 1 < 7$

$-1 < x < 4$

Oct 9-5:05 AM

3. Write an inequality that represents all real numbers that are at most -5 or at least 3. Graph the solutions.

$n \leq -5$ OR $n \geq 3$

Oct 9-5:06 AM

4. Solve the compound inequality
 $-2x + 7 > 3$ or $3x - 4 \geq 5$.
Graph the solutions.

$$\begin{aligned} -2x + 7 &> 3 \\ -2x &> -4 \\ -2 & \cdot -2 \end{aligned}$$

$x < 2$

$$\begin{aligned} 3x - 4 &\geq 5 \\ +4 & +4 \\ 3x &\geq 9 \\ \frac{3}{3} & \frac{9}{3} \end{aligned}$$

$x \geq 3$

$x < 2$ or $x \geq 3$

cw/hw: WKbk p. 311
Wkst 4-5
(1-11 odd, 19, 21, 29, 31, 37)

Oct 9-5:06 AM

Oct 9-4:59 AM