Algebra 1   5.4
Solve compound inequalities (and/or)
Graph solution sets of compound
inequalities

inequality
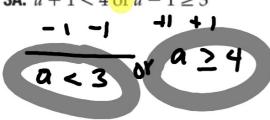greater than
less than
Venn diagram
✱ intersection   and
union   or
compound inequality

triangle puzzles

> To ride certain roller coasters, you must be at least
> 52 inches tall, and your height cannot exceed
> 72 inches. If h represents the height of a rider,
> we can write two inequalities to represent this.

52 t   max 72
$h \geq 52$ $h \leq 72$

$$52 \leq h \leq 72$$

Whiteboards

Solve each compound inequality. Then graph the solution set.

3A. $a + 1 < 4$ or $a - 1 \geq 3$

$$-1 \quad -1 \qquad +1 \quad +1$$

$$\boxed{a < 3} \quad \text{or} \quad \boxed{a \geq 4}$$

3B. $x \leq 9$ or $2 + 4x < 10$

Practice: solve & graph

☆ $2x+6>18$

$3x-1>5$ or $2x+2<-4$

$4 \leq 2x-6 \leq 18$

3x+7≤16 and 2x-1≥-15

or
-2x-3<5 ~~and~~ -3x+1>10
  +3 +3   -1 -1
_____   _____

$\dfrac{-2x}{-2} < \dfrac{8}{-2}$ $\dfrac{-3x}{-3} > \dfrac{9}{-3}$

(x > -4)   or   (x < -3)

-4 < x < -3

all numbers
all real
ARN

-4   -3

Triangle puzzle

$$3(x + {}^-5) \geq 2x + 10$$

$$3x + {}^-15 \geq \boxed{2x} + 10$$
$$-2x \qquad \boxed{-2x}$$

$$x + 75 \geq 10$$
$$ +15 \qquad +15$$
$$\overline{}$$
$$x \geq 25$$

25