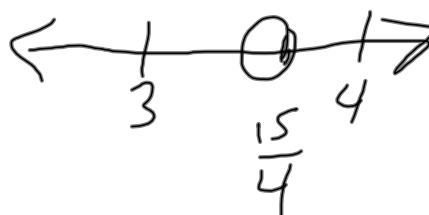


### Questions on inequalities hw?

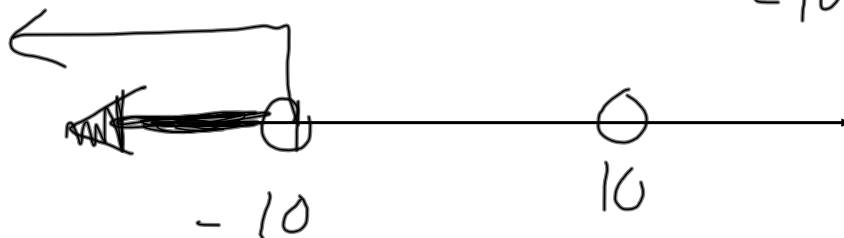
$$\textcircled{5} \quad \frac{4x}{4} > \frac{15}{4}$$

$$x = \frac{15}{4}$$



Dec 1-8:02 AM

$$-10 < x < 10$$



Dec 1-2:13 PM

SOLVING ABSOLUTE VALUE INEQUALITIES

**Solving Absolute Value Inequalities**

1. Follow the rules for solving absolute value equations
2. Remember that multiplying and dividing by a negative **flips** the inequality sign

**OR: Answer written as a Disjunction**

If the symbol is  $>$  or  $<$

$$|x| > a$$

greater than  
= OR  
← ○ →

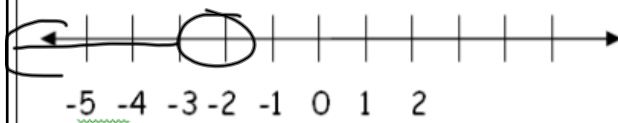
Nov 18-11:27 AM

CONSIDER:

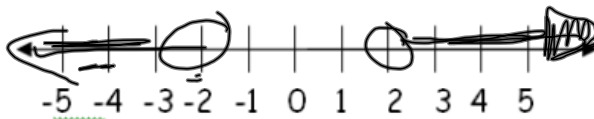
$$|x| > 2$$



CASE 1  
 $x > 2$



CASE 2  
 $x < -2$



Nov 18-11:28 AM

3 Absolute Value Inequalities 2012 notes per6.notebook

1)  $|x-20| > 5$

Case 1  $x-20 > 5$   
 $x > 25$

Case 2  $x-20 < -5$   
 $+20 = +20$   
 $x < 15$

$x-20 = 5$   
 $\vdots$   
 $x = 25$

$x-20 = -5$   
 $\vdots$   
 $x = 15$

3)  $|x+4| > -3$

$\mathbb{R}$   
 $(-\infty, \infty)$

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**AND: Answer written as a Conjunction**

If the symbol is  $<$  or  $\leq$

$|x| < a$

CONSIDER:  $|x| < 3$

CASE 1  
 $x < 3$

CASE 2  
 $x > -3$

Nov 18-11:29 AM

3 Absolute Value Inequalities 2012 notes per6.notebook

1)  $|x-3| \leq 4$

2)  $|3+x| - 4 < 0$   
 $+4 = +4$   


---

 $3+x < 4$  |  $3+x \geq -4$   
 $x < 1$  |  $x > -7$

3)  $|x+1| < -6$   
 $\emptyset$

{ } ← →

Nov 18-11:30 AM

**Solve.** Graph the solutions for the inequalities.  
 Check the solutions for abs. val. equations.

1) $ 8x-3  > 21$	6) $\left  \frac{1}{2}y-3 \right  \geq 3$
2) $ y-2  \leq 7$	7) $ y+9  \leq 2$
3) $ 5x+8  < 23$	8) $\left  y+\frac{1}{3} \right  > \frac{4}{3}$
4) $ 9-2x =5$	9) $ -4x+3  > 13$
5) $ x =4$	10) $\left  \frac{5}{8}x \right  < 10$

**REMEMBER:**

OR	AND
$>, \geq$	$<, \leq$

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