# Algebra I Lesson #4 Unit 4 Class Worksheet #4 For Worksheets #7&8

Continued Inequalities

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Example: -3 < x < 4

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This continued inequality says 2 things about the variable x.

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Solving Continued Inequalities

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Step 1:

Solving Continued Inequalities

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Step 1: Add 3 to each part.

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 $\begin{array}{r} -5 < 2x - 3 < 1 \\ +3 + 3 + 3 \end{array}$ 

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$$\begin{array}{r} -5 < 2x - 3 < 1 \\ +3 + 3 + 3 \\ \hline
-2 < \\ \end{array}$$

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Solving continued inequalities is just like solving other inequalities except there are 3 -partsø

Step 1: Add 3 to each part.

 $\begin{array}{r} -5 < 2x - 3 < 1 \\ +3 + 3 + 3 \\ \hline -2 < 2x \end{array}$ 

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Solving continued inequalities is just like solving other inequalities except there are 3 -partsø

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Solving Continued Inequalities

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Solving continued inequalities is just like solving other inequalities except there are 3 -partsø

Step 1: Add 3 to each part.

 $\begin{array}{r} -5 < 2x - 3 < 1 \\ +3 + 3 + 3 \\ \hline -2 < 2x < 4 \end{array}$ 

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Stan 1. Add 2 to a she want	-5 < 2x - 3 < 1	
Step 1: Add 3 to each part.	+3 +3 +3	
Step 2:	-2 < 2x < 4	

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Step 1: Add 3 to each part.	-5 < 2 +3	2x - 3 < 1 +3 +3
Step 2: Divide each part by 2.	-2 <	< 2x < 4

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Step 1:	Add 3 to each part.	-5 < 2 +3	2x - 3 < 1 +3 +3
Step 2:	Divide each part by 2.	$-\frac{2}{2} <$	$< \frac{2x}{2} < \frac{4}{2}$

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Step 1:	Add 3 to each part.	-5 < 2 +3	2x - 3 < 1 +3 +3
Step 2:	Divide each part by 2.	$-\frac{2}{2} <$	$\frac{2x}{2} < \frac{4}{2}$
		-1	

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Step 1: Add 3 to each part.	$ \begin{array}{r} -5 < 2x - 3 < 1 \\ +3 + 3 + 3 \end{array} $
Step 2: Divide each part by 2.	$-\frac{2}{2} < \frac{2x}{2} < \frac{4}{2}$
	-1 <
Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Step 1:	Add 3 to each part.	-5 < 2 +3	2x - 3 < 1 +3 +3
Step 2:	Divide each part by 2.	$-\frac{2}{2} <$	$\frac{2x}{2} < \frac{4}{2}$
		<b>-1</b> ·	< <u>x</u>

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Step 1:	Add 3 to each part.	-5 < 2 +3	2x - 3 < 1 +3 +3
Step 2:	Divide each part by 2.	$-\frac{2}{2} <$	$\frac{2x}{2} < \frac{4}{2}$
		-1 -	< x <

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Step 1:	Add 3 to each part.	-5 < 2 +3	2x - 3 < 1 +3 +3
Step 2:	Divide each part by 2.	$-\frac{2}{2} <$	$\leq \frac{2x}{2} \leq \frac{4}{2}$
		-1	< x < 2

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Solving continued inequalities is just like solving other inequalities except there are  $3 \div parts \emptyset$ 

Step 1: Add 3 to each part.

Step 2: Divide each part by 2.

$$\begin{array}{r} -5 < 2x - 3 < 1 \\ +3 & +3 & +3 \\ \hline -\frac{2}{2} < \frac{2x}{2} < \frac{4}{2} \\ \hline -1 < x < 2 \end{array}$$

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Step 1: Add 3 to each part.	$ \begin{array}{r} -5 < 2x - 3 < 1 \\ +3 + 3 + 3 \end{array} $
Step 2: Divide each part by 2.	$-\frac{2}{2} < \frac{2x}{2} < \frac{4}{2}$
Step 3:	-1 < x < 2

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

Step 1: Add 3 to each part.	$ \begin{array}{r} -5 < 2x - 3 < 1 \\ +3 + 3 + 3 \end{array} $
Step 2: Divide each part by 2.	$-\frac{2}{2} < \frac{2x}{2} < \frac{4}{2}$
Step 3: Graph the solution set.	-1 < x < 2

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6

 $\mapsto$ 

Step 1: Add 3 to each part.	$ \begin{array}{r} -5 < 2x - 3 < 1 \\ +3 + 3 + 3 \\ \end{array} $	
Step 2: Divide each part by 2.	$-\frac{2}{2} < \frac{2x}{2} < \frac{4}{2}$	
Step 3: Graph the solution set.	-1 < x < 2	

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6

 $\mapsto$ 

Step 1:	Add 3 to each part.	-5 < 2 +3	2x - 3 < 1 +3 +3
Step 2:	Divide each part by 2.	$-\frac{2}{2} <$	$< \frac{2x}{2} < \frac{4}{2}$
Step 3:	Graph the solution set.	-1	< x < 2

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

 $\leftrightarrow$ 

Step 1: Add 3 to each part.	-5 < 2 +3	2x - 3 < 1 +3 +3
Step 2: Divide each part by 2.	$-\frac{2}{2} <$	$\leq \frac{2x}{2} \leq \frac{4}{2}$
Step 3: Graph the solution set.	-1	< x < 2

Solving Continued Inequalities

Example: -5 < 2x - 3 < 1

-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6

 $\leftrightarrow$ 

Step 1:	Add 3 to each part.	-5 < 2 +3	2x - 3 < 1 +3 +3
Step 2:	Divide each part by 2.	$-\frac{2}{2} <$	$\leq \frac{2x}{2} \leq \frac{4}{2}$
Step 3:	Graph the solution set.	-1	< x < 2

Solving Continued Inequalities

Example:  $-9 \le 3x + 6 \le 12$ 

Solving Continued Inequalities

Example:  $-9 \le 3x + 6 \le 12$ 

$$-9 \le 3x + 6 \le 12$$

Solving Continued Inequalities

Example:  $-9 \le 3x + 6 \le 12$ 

$$-9 \le 3x + 6 \le 12$$

Step 1:

Solving Continued Inequalities

Example:  $-9 \le 3x + 6 \le 12$ 

 $-9 \le 3x + 6 \le 12$ 

Step 1: Subtract 6 from each part.

Solving Continued Inequalities

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1: Subtract 6 from each part.

 $\begin{array}{c} -9 \le 3x + 6 \le 12 \\ -6 & -6 & -6 \end{array}$ 

Solving Continued Inequalities

Example: 
$$-9 \le 3x + 6 \le 12$$

Step 1: Subtract 6 from each part.

$$\begin{array}{r} -9 \le 3x + 6 \le 12 \\ -6 & -6 & -6 \end{array}$$

Solving Continued Inequalities

Example: 
$$-9 \le 3x + 6 \le 12$$

Step 1: Subtract 6 from each part.

$$\begin{array}{r} -9 \le 3x + 6 \le 12 \\ -6 & -6 & -6 \end{array}$$

-15 <u><</u>

Solving Continued Inequalities

Example: 
$$-9 \le 3x + 6 \le 12$$

Step 1: Subtract 6 from each part.

 $\begin{array}{c} -9 \le 3x + 6 \le 12 \\ -6 & -6 & -6 \end{array}$ 

-15 ≤ 3x

Solving Continued Inequalities

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1: Subtract 6 from each part.

 $\begin{array}{c} -9 \le 3x + 6 \le 12 \\ -6 & -6 & -6 \end{array}$ 

 $-15 \leq 3x \leq$ 

Solving Continued Inequalities

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1: Subtract 6 from each part.

 $\begin{array}{c} -9 \le 3x + 6 \le 12 \\ -6 & -6 & -6 \end{array}$ 

 $-15 \le 3x \le 6$ 

Solving Continued Inequalities

Example: -	$-9 \le 3x + 6 \le 12$
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Step 1:	Subtract 6 from each part.	_
Step 2:		

 $-9 \le 3x + 6 \le 12 \\ -6 -6 -6 \\ -15 \le 3x \le 6$ 

Solving Continued Inequalities

Example:	$-9 \le 3x + 6 \le 12$
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Step 1: Subtract 6 from each p	art.
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Step 2: Divide each part by 3.

 $-9 \le 3x + 6 \le 12$ -6 - 6 - 6

 $-15 \le 3x \le 6$ 

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1:	Subtract 6 from each part.	$-9 \le 3$ $-6$	$\begin{array}{r} x+6 \leq 12 \\ -6 & -6 \end{array}$
Step 2:	Divide each part by 3.	$-\frac{15}{3}$	$\leq \frac{3x}{3} \leq \frac{6}{3}$

Example: •	$-9 \le 3x + 6 \le 1$	2
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Step 1:	Subtract 6 from each part.	$-9 \le 3$ -6	$\begin{array}{r} x+6 \leq 12 \\ -6 & -6 \end{array}$
Step 2:	Divide each part by 3.	$-\frac{15}{3}$	$\leq \frac{3x}{3} \leq \frac{6}{3}$
		-5	

$-9 \le 3x + 6 \le 12$

Step 1:	Subtract 6 from each part.	$-9 \le 3$ $-6$	$3x + 6 \leq 12$ $-6 - 6$
Step 2:	Divide each part by 3.	$-\frac{15}{3}$	$\frac{\leq 3x \leq 6}{3}$
		-5	<

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1:	Subtract 6 from each part.	$-9 \le 3x + 6 \le 12 \\ -6 - 6 - 6$
Step 2:	Divide each part by 3.	$-\frac{15}{3} \le \frac{3x}{3} \le \frac{6}{3}$
		-5 < x

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1:	Subtract 6 from each part.	$-9 \le 3$ -6	$5x + 6 \le 12$ $-6 - 6$
Step 2:	Divide each part by 3.	$-\frac{15}{3}$	$\leq \frac{3x}{3} \leq \frac{6}{3}$
		-5	< <u>x</u> <

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1:	Subtract 6 from each part.	$-9 \le 3x + 6 \le 12 \\ -6 - 6 - 6$
Step 2:	Divide each part by 3.	$-\frac{15}{3} \le \frac{3x}{3} \le \frac{6}{3}$
		-5 < x < 2

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1:	Subtract 6 from each part.	$-9 \le 3$ -6	$5x + 6 \le 12$ $-6 - 6$
Step 2:	Divide each part by 3.	$-\frac{15}{3}$	$\leq \frac{3x}{3} \leq \frac{6}{3}$
		-5	$\leq x \leq 2$

Example: -9 <u>-</u>	$\leq 3x + 6 \leq 12$
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Step 1: Su	ubtract 6 from each part.	$-9 \le 3x$	x + 6 - 6	≤12 -6
Step 2: Di	ivide each part by 3.	$-\frac{15}{3} \leq$	$\frac{3x}{3} \leq \frac{3x}{3}$	$\frac{6}{3}$
Step 3:		-5	<u>≤ x ≤</u>	2

Example: -9	$0 \leq 3x + 6 \leq 12$
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Step 1:	Subtract 6 from each part.	$-9 \le 3$ -6	6x+6 -6	$\leq 12 \\ -6$
Step 2:	Divide each part by 3.	$-\frac{15}{3}$	$\leq \frac{3x}{3} \leq$	$\leq \frac{6}{3}$
Step 3:	Graph the solution set.	-5	$\leq x \leq$	2

Example:	$-9 \le 3x + 6 \le 12$
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Step 1:	Subtract 6 from each part.	$-9 \le 3x + 6 \le 12 \\ -6 - 6 - 6$
Step 2:	Divide each part by 3.	$-\frac{15}{3} \le \frac{3x}{3} \le \frac{6}{3}$
Step 3:	Graph the solution set.	$-5 \le x \le 2$

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1:	Subtract 6 from each part.	$-9 \le 3$ -6	$\begin{array}{r} x+6 \leq 12 \\ -6 & -6 \end{array}$
Step 2:	Divide each part by 3.	$-\frac{15}{3}$	$\leq \frac{3x}{3} \leq \frac{6}{3}$
Step 3:	Graph the solution set.	-5	$\leq x \leq 2$

Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1:	Subtract 6 from each part.	$-9 \le 3$ $-6$	$5x + 6 \leq 12$ $-6 - 6$
Step 2:	Divide each part by 3.	$-\frac{15}{3}$	$\leq \frac{3x}{3} \leq \frac{6}{3}$
Step 3:	Graph the solution set.	-5	$\leq x \leq 2$



Example:	$-9 \le 3x + 6 \le 12$
----------	------------------------

Step 1:	Subtract 6 from each part.	$ \begin{array}{r} -9 \le 3x + 6 \le 12 \\ -6 & -6 & -6 \end{array} $
Step 2:	Divide each part by 3.	$-\frac{15}{3} \leq \frac{3x}{3} \leq \frac{6}{3}$
Step 3:	Graph the solution set.	$-5 \le x \le 2$



Solving Compound Inequalities
Solving Compound Inequalities

Type 1: -andø

Solving Compound Inequalities

Type 1: ∹andø

Example: x + 1 < 5 and 3x > -9

Solving Compound Inequalities

Type 1:  $\rightarrow$  and  $\phi$ Example: x + 1 < 5 and 3x > -9

Step 1: Solve each inequality.

Solving Compound Inequalities

Type 1: ∹andø	Example:	x + 1 < 5	and $3x > -9$	
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Step 1: Solve each inequality. x + 1 < 5 and 3x > -9

Type 1: ∹andø	Example:	x + 1 < 5 and $3x > -9$
Step 1: Solve each	ı inequality.	x + 1 < 5 and 3x > -9 -1 -1

Type 1: ∹andø	Example:	x + 1 < 5 and $3x > -9$
Step 1: Solve each inequality.		x + 1 < 5 and $3x > -9-1 -1$
		X

Type 1: ∹andø	Example:	x + 1 < 5 and $3x > -9$
Step 1: Solve each inequality.		x + 1 < 5 and $3x > -9-1 -1$
		x <

Type 1: ∹andø	Example:	x + 1 < 5 and $3x > -9$
Step 1: Solve eac	h inequality.	x + 1 < 5 and $3x > -9-1 -1$
		X ~ 4

Type 1: ∹andø	Example:	x + 1 < 5 and $3x > -9$
Step 1: Solve eacl	n inequality.	$\frac{x+1 < 5}{-1 - 1} \text{ and } \frac{3x}{3} > \frac{-9}{3}$ $\frac{x < 4}{x < 4}$

Type 1: ∹andø	Example:	x+1 < 5 and $3x$	<mark>&gt; -9</mark>	
Step 1: Solve each inequality.		x + 1 < 5 and -1 -1	$\frac{3x}{3}$ >	- <u>-9</u> 3
		x < 4	X	

Type 1: ∹andø	Example:	<b>x</b> + 1 < 5 and 3 <b>x</b>	<mark>&gt; -9</mark>	
Step 1: Solve each inequality.		x + 1 < 5 and <u>-1 -1</u>	$\frac{3x}{3} >$	-9/3
		x < 4	x >	

Type 1: ∹andø	Example:	x+1 < 5 and $3x$	<mark>&gt; -9</mark>
Step 1: Solve each inequality.		x + 1 < 5 and <u>-1 -1</u>	$\frac{3x}{3} > \frac{-9}{3}$
		x < 4	x > -3

Type 1: ∹andø	Example:	x+1 < 5 and 3	<mark>8x &gt; -9</mark>
Step 1: Solve each inequality.		x + 1 < 5 an $-1$ $-1$	ad $\frac{3x}{3} > -\frac{9}{3}$
Step 2:		$\frac{-1}{x < 4}$	x > -3

Type 1:	∴andø	Example:	<b>x</b> + 1 < 5 and	3x > -9
Step 1:	Solve each in	nequality.	x + 1 < 5 = 2	and $\frac{3x}{3} > -\frac{9}{3}$
Step 2:	Graph the <u>in</u> the two solut	tersection of tion sets.	$\frac{1}{x < 4}$	x > -3

Type 1:	∴andø	Example:	$\mathbf{x} + 1 < 5$	and	<mark>d 3x</mark>	<mark>&gt; -9</mark>	
Step 1:	Solve each in	nequality.	x + 1 - 1	< 5 _1	and	$\frac{3x}{3} >$	-9/3
Step 2:	Graph the <u>in</u> the two solut	<u>tersection</u> of ion sets.	<u> </u>	< 4	_	x > -	3



Type 1:	andø	Example:	x+1 < 5 and	d 3x > -9	
Step 1:	Solve each in	nequality.	x + 1 < 5 -1 -1	and $\frac{3x}{3} >$	> - <u>9</u> 3
Step 2:	Graph the <u>in</u> the two solut	<u>tersection</u> of ion sets.	$\frac{1}{x < 4}$		-3



Type 1:	∹andø	Example:	x+1 < 5 and	3x > -9	
Step 1:	Solve each ir	nequality.	x + 1 < 5 = 2	and $\frac{3x}{3} > -\frac{9}{3}$	)  - 
Step 2:	Graph the <u>in</u> the two solut	<b>tersection</b> of ion sets.	$\frac{1}{x < 4}$	x > -3	,



Type 1:	: ∹andø	Example:	<b>x</b> +1<5 and 3	$3_{\rm X} > -9$	
Step 1:	Solve each i	nequality.	x + 1 < 5 ar -1 -1	$\frac{3x}{3} >$	- <u>-9</u> 3
Step 2:	Graph the <u>in</u> the two solut	tersection of tion sets.	x < 4 an	d x > -	<u>-</u> 3



Type 1:	: ∹andø	Example:	<b>x</b> +1<5 and 3	$3_{\rm X} > -9$	
Step 1:	Solve each i	nequality.	x + 1 < 5 ar -1 -1	$\frac{3x}{3} >$	- <u>-9</u> 3
Step 2:	Graph the <u>in</u> the two solut	tersection of tion sets.	x < 4 an	d x > -	<u>-</u> 3



Type 1:	∹andø	Example:	x+1 < 5 and	3x > -9	
Step 1:	Solve each in	nequality.	x + 1 < 5 = 1	and $\frac{3x}{3} >$	> - <u>9</u> 3
Step 2:	Graph the <u>in</u> the two solut	<u>tersection</u> of ion sets.	x < 4 a	and $x > 1$	-3



Solving Compound Inequalities

Type 1:	: ∹andø	Example:	x+1 < 5 and	<mark>id 3x</mark>	<mark>&gt; -9</mark>	
Step 1:	Solve each in	nequality.	x + 1 < 5 -1 -1	and	$\frac{3x}{3} >$	<u>-9</u> 3
Step 2:	Graph the <u>in</u> the two solut	<u>tersection</u> of ion sets.	<u>x &lt; 4</u>	and	x > -,	3

Step 3:



Solving Compound Inequalities

Type 1: ∹andø	Example:	x + 1 < 5 and $3x > -9$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>intersection</u> of the two solution sets.

 $\begin{array}{c} x+1 < 5 \ \text{and} \ \frac{3x}{3} > -9 \\ -1 \ -1 \ x < 4 \ \text{and} \ x > -3 \end{array}$ 

Step 3: Express the final solution in terms of x in simplest form.



Type 1: -andø Example:	x + 1 < 5 and $3x > -9$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>intersection</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

x + 1 < 5	and	3x >	9
-1 -1		3	3
x < 4	and	x > .	-3

$$-3 < x < 4$$



Solving Compound Inequalities

Type 1:  $\exists$  and  $\phi$  Example: 2x - 1 > -5 and 5x + 3 > 18

Solving Compound Inequalities

Type 1:  $\exists$  and  $\phi$  Example: 2x - 1 > -5 and 5x + 3 > 18

Step 1: Solve each inequality.

Solving Compound Inequalities

Type 1: -andø Example:	2x - 1 > -5 and $5x + 3 > 18$
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Step 1: Solve each inequality. 2x - 1 > -5 and 5x + 3 > 18

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
Step 1: Solve each	inequality.	2x - 1 > -5 and $5x + 3 > 18+1 +1$

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
Step 1: Solve eac	h inequality.	2x - 1 > -5 and 5x + 3 > 18 +1 +1
		<b>2</b> x

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
Step 1: Solve each inequality.		2x - 1 > -5 and $5x + 3 > 18+1 +1$
		2x >

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
Step 1: Solve each inequality.		2x - 1 > -5 and $5x + 3 > 18+1 +1$
		2x > -4

Solving Compound Inequalities

 $\frac{2x}{2} > \frac{-4}{2}$ 

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
Step 1: Solve each	inequality.	2x - 1 > -5 and $5x + 3 > 18+1 +1$

Solving Compound Inequalities

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$

Step 1: Solve each inequality.

$$\frac{2x - 1 > -5}{+1 + 1} \text{ and } 5x + 3 > 18$$

$$\frac{+1 + 1}{\frac{2x > -4}{2}}$$
x

Solving Compound Inequalities

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$

Step 1: Solve each inequality.

$$\frac{2x - 1 > -5}{+1 + 1} \text{ and } 5x + 3 > 18$$

$$\frac{+1 + 1}{2x > -4}$$

$$x >$$

Solving Compound Inequalities

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$

Step 1: Solve each inequality.

 $\frac{2x - 1 > -5}{+1 + 1}$  and 5x + 3 > 18 $\frac{2x - 4}{2}$ x > -2

Solving Compound Inequalities

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$

Step 1: Solve each inequality.

2x - 1 > -5 +1 +1	and	5x + 3 > 18 -3 -3
2x > -4	-	
2  2 $x > -2$		

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
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2x - 1 > -5	and	5x + 3 >	> 18
+1 +1	_	-3	-3
2x > -4	-	<b>5</b> x	
$\overline{2}$ $\overline{2}$			
x > -2			
Solving Compound Inequalities

Type 1: -andø Example:	2x - 1 > -5 and $5x + 3 > 18$
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2x - 1 > -5 +1 +1	and	5x + 3 > 18
$\frac{1}{2x > -4}$	-	$\frac{-3}{5x} > \frac{-3}{5x}$
$\frac{1}{2}$ $\frac{1}{2}$		UA ·
x > -2		

Solving Compound Inequalities

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
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2x - 1 > -5 +1 +1	and	5x + 3 > 18 -3 -3
2x > -4	-	5x > 15
$\overline{2}$ $\overline{2}$		
x > -2		

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
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Step 1: Solve each inequality.	
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2x - 1 > -5 +1 +1	and	5x + 3 > 18 -3 -3
$\frac{2x}{2} > -\frac{4}{2}$	-	$\frac{5x}{5} > \frac{15}{5}$
$2 \qquad 2 \\ x > -2$		5 5

Type 1: -andø Exar	nple: $2x - 1$	<mark>1 &gt; -5 and</mark>	5x + 3 > 18
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Step 1: Solve each inequality.	
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2x - 1 > -5 and	1 5x + 3 > 18
+1 +1	
2x > -4	5x > 15
$\overline{2}$ $\overline{2}$	$\overline{5}$ $\overline{5}$
x > -2	X

Type 1: $\div$ and $\phi$ Example: 2	2x - 1 > -5 and $5x + 3 > 18$
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Step 1: Solve each inequality.	
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2x - 1 > -5 a +1 +1	and $5x + 3 > 18$ -3 - 3
2x > -4	5x > 15
2 2	5 5
x > -2	x >

Type 1: -andø Example:	2x - 1 > -5 and $5x + 3 > 18$
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Step 1: Solve each inequality.	
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2x - 1 > -5 +1 +1	and	5x + 3 > 18 -3 -3
2x > -4	-	$\frac{5}{5x > 15}$
$\overline{2}$ $\overline{2}$		$\overline{5}$ $\overline{5}$
x > -2		x > 3

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x$	x + 3 > 18
Step 1: Solve each	h inequality.	2x - 1 > -5 and $+1 + 1$	5x + 3 > 18 -3 -3
Step 2:		$\frac{2x}{2} > \frac{-4}{2}$	$\frac{5x > 15}{5}$
		x > -2	x > 3

Type 1: ∹andø	Example:	2x - 1 > -5 and $5x$	t <mark>+3 &gt; 18</mark>
Step 1: Solve	each inequality.	2x - 1 > -5 and $+1 + 1$	5x + 3 > 18 -3 -3
Step 2: Graph the two	the <u>intersection</u> of of solution sets.	$\frac{2x}{2} > -\frac{4}{2}$	$\frac{5}{5} \times \frac{5}{5} \times \frac{15}{5}$
		x > -2	x > 3

Type 1: ∹andø	Example:	2x-1 > -5	and 5x + 3 > 18	
Step 1: Solve ea	ch inequality.	2x - 1 > +1	-5 and 5x + 3 >	18
Step 2: Graph th	ne <u>intersection</u> of	2x > 1	$\frac{4}{5x} > \frac{5x}{5x}$	<u>15</u>
the two s	solution sets.	2 x > -	$\begin{array}{ccc} 2 & 5 \\ -2 & x > \end{array}$	5 3



Type 1: ∹andø	Example:	2x - 1 > -5 and 5	x + 3 > 18
Step 1: Solve eac	h inequality.	2x - 1 > -5 and $+1 + 1$	d $5x + 3 > 18$ -3 -3
Step 2: Graph the two so	e <u>intersection</u> of olution sets.	$\frac{2x > -4}{2}$	$\frac{5}{5} \times \frac{5}{5} \times \frac{15}{5}$
		x > -2	x > 3



Type 1: ÷a	andø Example:	2x - 1 > -5 and $5x$	+ 3 > 18
Step 1: So	olve each inequality.	2x - 1 > -5 and $+1 + 1$	5x + 3 > 18 -3 -3
Step 2: G th	raph the <b>intersection</b> of e two solution sets.	$\frac{2x}{\frac{2}{2}} > \frac{-4}{2}$	$\frac{5}{5} > \frac{5}{5}$
		x > -2	x > 3



Type 1: ∹andø	Example:	2x - 1 > -5 and	5x + 3 > 18
Step 1: Solve ea	ach inequality.	2x - 1 > -5 +1 +1	and 5x + 3 > 18 -3 -3
Step 2: Graph the two	he <u>intersection</u> of solution sets.	$\frac{2x}{2} > \frac{-4}{2}$	$\frac{5}{5} \times \frac{5}{5} \times \frac{15}{5}$
		x > -2	and $x > 3$



Type 1: ∹and	dø Example:	2x - 1 > -5 and	1 5x + 3 > 18
Step 1: Solv	ve each inequality.	2x - 1 > -5 +1 +1	and $5x + 3 > 18$ -3 -3
Step 2: Gra the	ph the <u>intersection</u> of two solution sets.	$\frac{2x}{2} > -\frac{4}{2}$	$\frac{5}{5} \times \frac{5}{5} \times \frac{15}{5}$
		x > -2	and $x > 3$



Type 1: ∹andø	Example:	2x - 1 > -5 and	5x + 3 > 18
Step 1: Solve eac	ch inequality.	2x - 1 > -5 +1 +1	and $5x + 3 > 18$ -3 - 3
Step 2: Graph th the two s	e <u>intersection</u> of olution sets.	$\frac{2x}{2} > \frac{-4}{2}$	$\frac{5}{5} \times \frac{5}{5} \times \frac{15}{5}$
		x > -2	and $x > 3$



Type 1: ∹andø	Example:	2x - 1 > -5 and	5x + 3	<mark>) &gt; 18</mark>
Step 1: Solve each	ı inequality.	2x - 1 > -5	and 5x	x + 3 > 18 -3 -3
Step 2: Graph the the two so	<u>intersection</u> of lution sets.	$\frac{2x > -4}{\frac{2}{2} + \frac{1}{2}}$		$\frac{5}{5} = \frac{5}{5}$
Step 3:		x > -2	and	x > 3



Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>intersection</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

2x - 1 > -5	and	<b>5</b> x	+3:	> 18
+1 +1	_		-3	-3
2x > -4	_		5x >	> 15
$\overline{2}$ $\overline{2}$			5	5
x > -2	an	d	x >	> 3



Type 1: ∹andø	Example:	2x - 1 > -5 and $5x + 3 > 18$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>intersection</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

2x - 1 > -5 +1 +1	and	5x + 3 - 3	>18 -3
$\frac{2x}{2} > -\frac{4}{2}$		$\frac{5x}{5}$	> 15 5
x > -2	and		> 3





Solving Compound Inequalities

Type 1: ∹andø

Example:  $-4x + 6 \ge 14$  and 3x + 10 < 22

Solving Compound Inequalities

Type 1:  $\exists$  and  $\emptyset$  Example:  $-4x + 6 \ge 14$  and 3x + 10 < 22

Solving Compound Inequalities

Type 1: :andø Example: -	$-4x + 6 \ge 14$ and $3x + 10 < 22$
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Step 1: Solve each inequality.  $-4x + 6 \ge 14$  and 3x + 10 < 22

Solving Compound Inequalities

Type 1: ∴andø Ez	xample: $-4x + 6 \ge 14$ and $3x + 10 < 22$
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Step 1: Solve each inequality.

 $-4x + 6 \ge 14$  and 3x + 10 < 22-6 -6

Solving Compound Inequalities

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
~		

Step 1: Solve each inequality.

 $\frac{-4x+6 \ge 14}{-6} \text{ and } 3x+10 < 22$ -4x

Solving Compound Inequalities

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$

Step 1: Solve each inequality.

 $\frac{-4x + 6 \ge 14}{-6} \text{ and } 3x + 10 < 22$  $-4x \ge$ 

Solving Compound Inequalities

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$

$$\frac{-4x+6 \ge 14}{-6} \text{ and } 3x+10 < 22$$
  
$$\frac{-6}{-4x \ge 8}$$

Solving Compound Inequalities

Type 1: -andø Exan	pple: $-4x + 6 \ge 14$ and $3x + 10 < 22$
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$$\frac{-4x + 6 \ge 14 \text{ and } 3x + 10 < 22}{-6 - 6}$$
  
$$\frac{-4x \ge 8}{-4}$$

Solving Compound Inequalities

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
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$$\frac{-4x + 6 \ge 14}{-6 - 6} \text{ and } 3x + 10 < 22$$
  
$$\frac{-4x \ge 8}{-4}$$
  
x

Solving Compound Inequalities

Type 1: -andø Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
------------------------	-------------------------------------

$$\frac{-4x + 6 \ge 14}{-6 - 6} \text{ and } 3x + 10 < 22 \\
\frac{-4x \ge 8}{-4} \\
x \le$$

Solving Compound Inequalities

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
---------------	----------	-------------------------------------

$$\frac{-4x + 6 \ge 14}{-6 - 6} \text{ and } 3x + 10 < 22$$
  
$$\frac{-4x \ge 8}{-4}$$
  
$$x \le -2$$

Solving Compound Inequalities

Type 1: -andø Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
------------------------	-------------------------------------

$$\frac{-4x + 6 \ge 14 \text{ and } 3x + 10 < 22}{-6 - 6} \qquad \frac{-10 - 10}{-10} \\
\frac{-4x \ge 8}{-4} \\
x \le -2$$

Solving Compound Inequalities

Type 1: -andø Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
------------------------	-------------------------------------

$-4x + 6 \ge 14$ -6 -6	and	$3x + 10 < 22 \\ -10 - 10$
$-\frac{4x}{-4} \ge \frac{8}{-4}$	_	<b>3</b> x
x ≤ -2		

Solving Compound Inequalities

Type 1: -andø Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
------------------------	-------------------------------------

$-4x + 6 \ge 14$ -6 -6	and	3x + 10 < 22 -10 -10
$-\frac{4x}{-4} \ge \frac{8}{-4}$	-	<u>3x</u> <
x ≤ -2		

Solving Compound Inequalities

Type 1: -andø Example: -	$-4x + 6 \ge 14$ and $3x + 10 < 22$
--------------------------	-------------------------------------

$-4x + 6 \ge 14$ -6 -6	and	$3x + 10 < 22 \\ -10 - 10$
$-\frac{4x}{-4} \ge \frac{8}{-4}$	_	3x < 12
x ≤ -2		

Solving Compound Inequalities

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
---------------	----------	-------------------------------------

$-4x + 6 \ge 14$ -6 -6	and	3x	t + 1( -1(	) < 22 ) -10
-4x ≥ 8	-		<b>3</b> x	< 12
-4 -4			3	3
x ≤ -2				

Solving Compound Inequalities

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
---------------	----------	-------------------------------------

$-4x + 6 \ge 14$ -6 -6	and	3x + 10 -10	> < 22 > -10
$-4x \ge 8$	-	<u> </u>	< 12
-4 -4		$\overline{3}$	3
x ≤ -2		X	

Solving Compound Inequalities

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
---------------	----------	-------------------------------------

$-4x + 6 \ge 14$ -6 -6	and	$3x + 10 < 22 \\ -10 - 10$
$-4x \ge 8$	-	$\frac{3x}{2} < \frac{12}{2}$
-4 -4 x < -2		3 3 x <

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
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Step 1:	Solve	each	ineq	uality.
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$-4x + 6 \ge 14$ -6 -6	and	3x + 10 -10	0 < 22 0 -10
$-4x \ge 8$	-	<b>3</b> x	< 12
-4 -4		3	3
x ≤ -2		X	< 4
Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x$	+ 10 < 22
------------------------------	--	-----------------------------------	--
Step 1: Solve each	h inequality.	$-4x + 6 \ge 14$ and $-6 - 6$	3x + 10 < 22 -10 -10
Step 2: Graph the the two so	<u>intersection</u> of lution sets.	$\frac{-4x}{-4} \ge \frac{8}{-4}$	$\frac{3x < 12}{\frac{3}{3} < \frac{12}{3}}$
		x <u>≤</u> −2	x < 4

Type 1:	andø	Example:	$-4x + 6 \ge 14$ and $3x - 3x = 3$	+ 10 < 22
Step 1:	Solve each in	nequality.	$-4x + 6 \ge 14$ and $-6 - 6$	3x + 10 < 22 -10 -10
Step 2:	Graph the <u>in</u> the two solut	<u>tersection</u> of tion sets.	$\frac{-4x}{-4} \ge \frac{8}{-4}$	$\frac{10^{-10}}{\frac{3x}{3} < \frac{12}{3}}$
			x ≤ -2	x < 4



Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x$	+ 10 < 22
Step 1: Solve eac	h inequality.	$-4x + 6 \ge 14$ and $-6 - 6$	3x + 10 < 22 -10 -10
Step 2: Graph the the two so	intersection of olution sets.	$\frac{-4x}{-4} \ge \frac{8}{-4}$	$\frac{3x < 12}{3}$
		x < -2	x < 4



Solving Compound Inequalities

x <u>≤</u> -2

x < 4

Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x$	+ 10 < 22
Step 1: Solve each	n inequality.	$-4x + 6 \ge 14$ and $-6 - 6$	3x + 10 < 22 -10 -10
Step 2: Graph the the two so	<u>intersection</u> of lution sets.	$-\underline{4x} \ge \underline{8}$	$\frac{3x < 12}{3}$



Type 1:	: ∹andø	Example:	$-4x + 6 \ge 14$ and	3x + 1	<mark>10 &lt; 2</mark> 2	2
Step 1:	Solve each	inequality.	$-4x + 6 \ge 14$ -6 -6	and 3x	x + 10 - 10	< 22 -10
Step 2:	Graph the the two sol	intersection of ution sets.	$-\frac{4x}{-4} \ge \frac{8}{-4}$		$\frac{3x}{3}$	$\frac{12}{3}$
			x < -2	and	<b>x</b> <	



Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and	1 3x + 1	<b>0</b> < 22
Step 1: Solve ea	ch inequality.	$-4x + 6 \ge 14$ -6 -6	and 3x	x + 10 < 22 -10 -10
Step 2: Graph the two s	ne <u>intersection</u> of solution sets.	$-\underline{4x} \ge \underline{8}$		$\frac{3x}{3} < \frac{12}{3}$
		x <u>≤</u> −2	and	x < 4



Example:	$-4x + 6 \ge 14$ and	3x + 3	<u>10 &lt; 22</u>	
h inequality.	$-4x + 6 \ge 14$ -6 -6	and 3	x + 10 < -10 -	22 -10
intersection of olution sets.	$-\frac{4x}{-4} \ge \frac{8}{-4}$	and	$\frac{3x}{3} < \frac{1}{3}$	23
	Example: h inequality. <u>intersection</u> of olution sets.	Example: $-4x + 6 \ge 14$ and h inequality. $-4x + 6 \ge 14$ -6 - 6 -6 - $4x \ge 8$ olution sets. $-4x \ge 8$ $-4x \ge 8$ $-5x \ge 10$ $-5x \ge 10$ -5x = 10	Example: $-4x + 6 \ge 14$ and $3x + 14$ and $3x$	Example: $-4x + 6 \ge 14$ and $3x + 10 < 22$ h inequality. $-4x + 6 \ge 14$ and $3x + 10 < -6$ intersection of olution sets. $-4x \ge 8$ $-4x \ge 8$ $3x < 1$ $x \le -2$ $3n - x \le 4$



- Step 1: Solve each inequality.
- Step 2: Graph the <u>intersection</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

$-4x + 6 \ge 14$ -6 -6	and	3x	+ 1 -1	) < 0 ·	< 22 -10
$-\underline{4x} \ge \underline{8}$			$\frac{3x}{3}$	<	$\frac{12}{3}$
x ≤ -2	and	d	X	<	4



Type 1: ∹andø	Example:	$-4x + 6 \ge 14$ and $3x + 10 < 22$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>intersection</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

$-4x \ge 8$	$\frac{3x}{2}$	$< \frac{12}{2}$
-4 -4 x ≤ -2 and	3 X	3 < 4





Solving Compound Inequalities

Type 1: ∹andø

Example:  $5x + 3 \le 13$  and  $-2x + 9 \le 3$ 

Solving Compound Inequalities

Type 1:  $\exists$  and  $\phi$ Example: $5x + 3 \leq 13$  and -2x + 9 < 3

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
---------------	----------	-----------------------------------

Step 1: Solve each inequality.  $5x + 3 \le 13$  and -2x + 9 < 3

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$	and $-2x + 9 < 3$

Step 1: Solve each inequality.

 $5x + 3 \le 13$  and -2x + 9 < 3-3 - 3

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
Step 1: Solve each	n inequality.	$5x + 3 \le 13$ and $-2x + 9 < -3 - 3$

3

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
Step 1: Solve each	n inequality.	$5x + 3 \le 13$ and $-2x + 9 < 3$

$$\frac{-3 \quad -3}{5x <}$$

Solving Compound Inequalities

3

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
Step 1: Solve each inequality.		$5x + 3 \le 13$ and $-2x + 9 < -3 - 3$
		5x ≤ 10

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$

$$\frac{5x + 3 \le 13 \text{ and } -2x + 9 < 3}{\frac{-3}{5} - 3}$$

Solving Compound Inequalities

Type 1: ∹andø Exan	nple: 5x + 3 <	<b>13 and <math>-2x + 9 &lt; 3</math></b>
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$$5x + 3 \le 13 \text{ and } -2x + 9 < 3$$

$$-3 - 3$$

$$5x \le 10$$

$$5 \le 10$$

$$x$$

Solving Compound Inequalities

Type 1: -andø Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
------------------------	-----------------------------------

$$5x + 3 \le 13 \text{ and } -2x + 9 < 3$$

$$-3 - 3$$

$$5x \le 10$$

$$5x \le 10$$

$$x \le 10$$

Solving Compound Inequalities

Type 1: -andø Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
------------------------	-----------------------------------

$$5x + 3 \le 13 \text{ and } -2x + 9 < 3$$

$$-3 - 3$$

$$5x \le 10$$

$$5x \le 10$$

$$x \le 2$$

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
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$5x + 3 \le 13$ -3 -3	and	-2x + 9 < 3 -9 -9
$\frac{5x}{5} \leq \frac{10}{5}$		
$x \le 2$		

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and	-2x+9<3
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$5\mathbf{x} + 3 \leq 13$ $-3  -3$	and	-2x + 9 < 3 -9 -9
$\frac{5x}{5} \leq \frac{10}{5}$		-2x
x < 2		

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and	-2x+9<3
---------------	----------	---------------------	---------

$5x + 3 \le 13$ $-3 - 3$	and -2	2x + 9 < 3 -9 -9
$\frac{5x}{5} \leq \frac{10}{5}$		-2x <
x < 2		

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and	-2x+9<3
---------------	----------	---------------------	---------

$5x + 3 \leq 13$ $-3 - 3$	and	-2x + 9 < 3 -9 -9
$\frac{5x}{5} \le \frac{10}{5}$		-2x < -6
x ≤ 2		

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
---------------	----------	-----------------------------------

$5x + 3 \leq 13$ $-3 - 3$	and	-2x + 9 - 9	< 3 -9
$\frac{5x}{5} \le \frac{10}{5}$		$\frac{-2x}{-2} <$	< <u>-6</u> -2
x ≤ 2			

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
---------------	----------	-----------------------------------

$5x + 3 \le 13$ and $-3 - 3$	-2x + 9 < 3 -9 -9
$\frac{5x \le 10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
x ≤ 2	X

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
---------------	----------	-----------------------------------

$5x + 3 \le 13$ and $-3 - 3$	1 -2x + 9 < 3 -9 -9
$\frac{5x}{5} \le \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
x ≤ 2	<b>x</b> >

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
---------------	----------	-----------------------------------

$5x + 3 \le 13$ and $-3 - 3$	d $-2x + 9 < 3$ -9 - 9
$\frac{5x}{5} \le \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
x ≤ 2	x > 3

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-22$	x + 9 < 3
Step 1: Solve ea	ach inequality.	$5x + 3 \le 13$ and $-3 = -3$	-2x + 9 < 3
Step 2: Graph the two	he <u>intersection</u> of solution sets.	$\frac{-3}{5} = \frac{-3}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x <u>≤</u> 2	x > 3

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x$	<mark>x + 9 &lt; 3</mark>
Step 1: Solve ea	ach inequality.	$5x + 3 \le 13$ and $-3 - 3$	-2x + 9 < 3 -9 -9
Step 2: Graph the two	he <u>intersection</u> of solution sets.	$\frac{5}{5} \leq \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x ≤ 2	x > 3



Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x$	<mark>x + 9 &lt; 3</mark>
Step 1: Solve ea	ch inequality.	$5x + 3 \le 13$ and $-3 - 3$	-2x + 9 < 3 -9 -9
Step 2: Graph the <u>intersection</u> of the two solution sets.		$\frac{5x}{5} \leq \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x < 2	x > 3



Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x$	<mark>x + 9 &lt; 3</mark>
Step 1: Solve e	ach inequality.	$5x + 3 \le 13$ and $-3 - 3$	-2x + 9 < 3 _9 _9
Step 2: Graph t the two	the <u>intersection</u> of solution sets.	$\frac{5x}{5} \leq \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x < 2	x > 3



Type 1	: ∹andø	Example:	5x + 3 <u>-</u>	<u>&lt; 13 an</u>	d -2x +	<mark>9 &lt; 3</mark>	
Step 1:	Solve each in	nequality.	5x -	$+3 \le 13$	and -2	2x + 9	< 3
Step 2:	Graph the <u>in</u> the two solut	<u>tersection</u> of ion sets.		$\frac{5}{5} \leq \frac{10}{5}$		$\frac{-2x}{-2} < \frac{1}{2}$	< <u>-6</u> -2
				x ≤ 2	and	x >	3



Type 1:	∹andø	Example:	$5x + 3 \le 13$ ar	<mark>id -2x</mark> ·	<mark>+ 9 &lt; 3</mark>
Step 1:	Solve each in	equality.	$5x + 3 \le 13$	and -	-2x + 9 < 3
Step 2:	Graph the <u>int</u> the two soluti	tersection of ion sets.	$\frac{5}{5} \leq \frac{10}{5}$	<u>,                                    </u>	$\frac{-2x}{-2} < \frac{-6}{-2}$
			x ≤ 2	and	x > 3



Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>intersection</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

$5x + 3 \le 13$ -3 -3	and -	-2x + 9 < 3 -9 -9	
$\frac{5x}{5} \le \frac{10}{5}$		$\frac{-2x}{-2} < \frac{-6}{-2}$	
x ≤ 2	and	x > 3	

Solving Compound Inequalities

Type 1: ∹andø	Example:	$5x + 3 \le 13$ and $-2x + 9 < 3$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>intersection</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

$5x + 3 \le 13$ $-3 - 3$	and -	-2x + 9 < 3 -9 -9
$\frac{5x}{5} \le \frac{10}{5}$		$\frac{-2x}{-2} < \frac{-6}{-2}$
x <u>≤</u> 2	and	x > 3

no solution


Solving Compound Inequalities

Type 2: -orø

Solving Compound Inequalities

Type 2:  $\div$ orøExample: $5x + 3 \le 13$  or -2x + 9 < 3

Solving Compound Inequalities

Type 2:  $\div or \phi$ Example: $5x + 3 \le 13$  or -2x + 9 < 3

Solving Compound Inequalities

Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$

Step 1: Solve each inequality.  $5x + 3 \le 13$  or -2x + 9 < 3

Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
Step 1: Solve ea	ch inequality.	$5x + 3 \le 13$ or $-2x + 9 < 3$ -3 - 3

Type 2: ÷orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
Step 1: Solve each inequality.		$5x + 3 \le 13$ or $-2x + 9 < 3$ -3 - 3
		<u>5x</u>

Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
Step 1: Solve ea	ch inequality.	$5x + 3 \le 13$ or $-2x + 9 < 3$ -3 - 3
		5x ≤

Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
Step 1: Solve ea	ch inequality.	$5x + 3 \le 13 \text{ or } -2x + 9 < 3$
		$5x \le 10$

Solving Compound Inequalities

Type 2: ÷orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$

$$\frac{5x + 3 \le 13 \text{ or } -2x + 9 < 3}{\frac{-3}{5} \le \frac{10}{5}}$$

Solving Compound Inequalities

Type 2: ∹orø	Example:	$5x + 3 \le 13$	or $-2x + 9 < 3$

$$\frac{5x + 3 \le 13 \text{ or } -2x + 9 < 3}{\frac{-3}{5} - 3}$$

$$\frac{5x \le 10}{5}$$
x

Solving Compound Inequalities

Type 2: ∹orø	Example:	$5x + 3 \le 13$	or $-2x + 9 < 3$

$$\frac{5x + 3 \le 13 \text{ or } -2x + 9 < 3}{\frac{-3}{5} - 3}$$

$$\frac{5x \le 10}{5}$$

$$x \le$$

Solving Compound Inequalities

Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$

$$5x + 3 \le 13 \text{ or } -2x + 9 < 3$$

$$-3 - 3$$

$$5x \le 10$$

$$5x \le 10$$

$$x \le 2$$

Solving Compound Inequalities

$5x + 3 \le 13$ -3 -3	or $-2x + 9 < 3$ -9 -9
$\frac{5x}{5} \le \frac{10}{5}$	
x ≤ 2	

Solving Compound Inequalities

Type 2: ÷orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
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$5x + 3 \le 13 \ 0$	or $-2x + 9 < 3$ -9 -9
$\frac{5x}{5} \le \frac{10}{5}$	-2x
x ≤ 2	

Solving Compound Inequalities

Type 2: ÷orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
--------------	----------	----------------------------------

$5x + 3 \le 13 - 3 = -3$	or $-2x + 9 < 3$ -9 -9
$\frac{5x}{5} \le \frac{10}{5}$	-2x <
x ≤ 2	

Solving Compound Inequalities

Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
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$5x + 3 \le 13$ or $-3 - 3$	or $-2x + 9 < 3$ -9 - 9
$\frac{5x}{5} \le \frac{10}{5}$	-2x < -6
x ≤ 2	

Solving Compound Inequalities

$5x + 3 \le 13$ or $-3 - 3$	r -2x + 9 < 3 -9 -9
$\frac{5x \leq 10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
$x \leq 2$	

Solving Compound Inequalities

$5x + 3 \le 13$ or -3 -3	-2x + 9 < 3 -9 -9
$\frac{5x}{5} \le \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
x <u>≤</u> 2	X

Type 2: ÷orø Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
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Step 1: Solve each inequality.	
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$5x + 3 \le 13$ or - -3 -3	-2x + 9 < 3 -9 -9
$\frac{5x}{5} \leq \frac{10}{5}$	$\boxed{\frac{-2x}{-2} < \frac{-6}{-2}}$
x <u>≤</u> 2	x >

Type 2: ÷orø Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
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Step 1: Solve each inequality.	
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$5x + 3 \le 13$ -3 -3	or $-2x + 9 < 3$ -9 - 9
$\frac{5x}{5} \le \frac{10}{5}$	$-\frac{2x}{-2} < \frac{-6}{-2}$
$x \leq 2$	x > 3

Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x$	<mark>(+9&lt;3</mark>
Step 1: Solve ea	ch inequality.	$5x + 3 \le 13$ or $-3 = -3$	-2x + 9 < 3 -9 -9
Step 2: Graph th two solu	e <u>union</u> of the ition sets.	$\frac{5}{5} \leq \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x <u>≤</u> 2	x > 3

Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x$	<mark>x + 9 &lt; 3</mark>
Step 1: Solve ea	ch inequality.	$5x + 3 \le 13$ or -3 -3	-2x + 9 < 3 -9 -9
Step 2: Graph th two solu	e <u>union</u> of the ition sets.	$\frac{5}{5} \leq \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x ≤ 2	x > 3



Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x$	+ 9 < 3
Step 1: Solve ead	ch inequality.	$5x + 3 \le 13$ or	-2x + 9 < 3
Step 2: Graph the two solu	e <u>union</u> of the tion sets.	$\frac{5}{5} \leq \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x ≤ 2	x > 3



Type 2: ∹orø	Example:	$5x + 3 \le 13$ or $-2x$	+ 9 < 3
Step 1: Solve	each inequality.	$5x + 3 \le 13$ or	-2x + 9 < 3
Step 2: Graph two s	n the <u>union</u> of the solution sets.	$\frac{-3}{5} = \frac{5}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x ≤ 2	x > 3



Type 2: ∹orø	Example:	$5x + 3 \le 13$ or -	-2x + 9 < 3
Step 1: Solve eac	ch inequality.	$5x + 3 \le 13$	or $-2x + 9 < 3$ -9 -9
Step 2: Graph the two solut	e <u>union</u> of the tion sets.	$\frac{5x}{5} \leq \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x < 2	or $x > 3$



Type 2: ∹orø	Example:	$5x + 3 \le 13$ or .	-2x + 9 < 3
Step 1: Solve eac	ch inequality.	$5x + 3 \le 13$	or $-2x + 9 < 3$ -9 -9
Step 2: Graph the two solu	e <u>union</u> of the tion sets.	$\frac{5}{5} \leq \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x < 2	or x > 3



Type 2: ÷orø	• Example:	$5x + 3 \le 13$ or -2	2x + 9 < 3
Step 1: Solv	ve each inequality.	$5x + 3 \le 13$ 0	r -2x + 9 < 3
Step 2: Gra	ph the <u>union</u> of the solution sets.	$\frac{5}{5} \leq \frac{10}{5}$	$\frac{-2x}{-2} < \frac{-6}{-2}$
		x < 2	or $x > 3$



Type 2: -orø Example:	$5x + 3 \le 13$ or $-2x + 9 < 3$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>union</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

$5x + 3 \le 13$ -3 -3	or -	2x + 9 < 3 -9 -9
$\frac{5x}{5} \le \frac{10}{5}$		$\frac{-2x}{-2} < \frac{-6}{-2}$
x ≤ 2	or	x > 3



Solving Compound Inequalities

Type 2: ÷orø	Example: <mark>5</mark>	$5x + 3 \le 13$ or $-2x + 9 < 3$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>union</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

$5x + 3 \leq 13$ $-3 - 3$	or -	2x + 9 < 3 -9 -9
$\frac{5x}{5} \le \frac{10}{5}$	_	$\frac{-2x}{-2} < \frac{-6}{-2}$
x <u>≤</u> 2	or	x > 3

 $x \le 2 \text{ or } x > 3$ 



Solving Compound Inequalities

Type 2:  $\div$ orøExample: $-4x + 6 \ge 14$  or 3x + 10 < 22

Solving Compound Inequalities

Type 2:  $\div or \phi$  Example:  $-4x + 6 \ge 14$  or 3x + 10 < 22

Solving Compound Inequalities

Type 2: ÷orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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Step 1: Solve each inequality.  $-4x + 6 \ge 14$  or 3x + 10 < 22

Solving Compound Inequalities

$\frac{1}{2} = \frac{1}{2} = \frac{1}$	Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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Step 1: Solve each inequality.

 $-4x + 6 \ge 14$  or 3x + 10 < 22-6 -6

Type 2: -orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
Step 1: Solve each inequality.		$-4x + 6 \ge 14 \text{ or } 3x + 10 < 22$
		-4x

Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
Step 1: Solve each inequality.		$-4x + 6 \ge 14 \text{ or } 3x + 10 < 22$
		-4x ≥

Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
Step 1: Solve each inequality.		$-4x + 6 \ge 14 \text{ or } 3x + 10 < 22$
		$-4x \ge 8$
Solving Compound Inequalities

Type 2: ∹orø	Example:	$-4x + 6 \ge 14$	or $3x + 10 < 22$	

$$\frac{-4x + 6 \ge 14 \text{ or } 3x + 10 < 22}{-6 - 6}$$
  
$$\frac{-4x \ge 8}{-4}$$

Solving Compound Inequalities

Type 2: -orø Exam	ple: $-4x + 6 \ge 14$ or $3x + 10 < 22$
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$$\frac{-4x + 6 \ge 14 \text{ or } 3x + 10 < 22}{-6 - 6}$$

$$\frac{-4x \ge 8}{-4}$$
x

Solving Compound Inequalities

Type 2: ÷orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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$$\frac{-4x + 6 \ge 14 \text{ or } 3x + 10 < 22}{-6 - 6} \\
\frac{-4x \ge 8}{-4} \\
x \le$$

Solving Compound Inequalities

Type 2: ÷orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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$$\frac{-4x + 6 \ge 14 \text{ or } 3x + 10 < 22}{-6 - 6} \\
\frac{-4x \ge 8}{-4} \\
x \le -2$$

Solving Compound Inequalities

Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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$-4x + 6 \ge 14$ -6 -6	or $3x + 10 < 22$ -10 -10
$-\frac{4x}{-4} \ge \frac{8}{-4}$	
x <b>≤</b> −2	

Solving Compound Inequalities

Type 2: -orø Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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$-4x + 6 \ge 14$ -6 -6	or $3x + 10 < 22$ -10 -10
$-4x \ge 8$	<b>3</b> x
-4 -4	
x <u>≤</u> −2	

Solving Compound Inequalities

Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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$-4x + 6 \ge 14$ -6 -6	or $3x + 10 < 22$ -10 -10
$-4x \ge 8$	3x <
-4 -4	
x <u>≤</u> −2	

Solving Compound Inequalities

Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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$-4x + 6 \ge 14$ -6 -6	or $3x + 10 < 22$ -10 -10
$-4x \ge 8$	3x < 12
-4 -4	
x <u>≤</u> −2	

Solving Compound Inequalities

Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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$-4x + 6 \ge 14$ -6 -6	or $3x + 10 < 22$ -10 - 10
$-4x \ge 8$	3x < 12
-4 -4	$\overline{3}$ $\overline{3}$
x <u>≤</u> −2	

Type 2: ∸orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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Step 1:	Solve	each	inec	luality.
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$-4x + 6 \ge 14$	or 3x + 10 < 22
-6 -6	-10 -10
$-4x \ge 8$	$\frac{3x < 12}{\frac{3}{2}}$
-4 -4	3 3
x ≤ -2	X

Type 2: ∸orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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Step 1:	Solve	each	inec	luality.
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$-4x + 6 \ge 14$ or $-6$ -6	or $3x + 10 < 22$ -10 - 10
$-4x \ge 8$	3x < 12
-4 -4	$\overline{3}$ $\overline{3}$
x ≤ -2	<b>x</b> <

Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 10 < 22$
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Step 1:	Solve	each	inequ	ality.
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$-4x + 6 \ge 14$ 0 -6 -6	or $3x + 10 < 22$ -10 - 10
$-4x \ge 8$	3x < 12
<u>-4</u> <u>-4</u>	$\overline{3}$ $\overline{3}$
x ≤ -2	x < 4

Type 2: ÷orø	Example:	$-4x + 6 \ge 14$ or $3x + 6$	<u>10 &lt; 22</u>
Step 1: Solve eac	h inequality.	$-4x + 6 \ge 14$ or $3^{-6} - 6^{-6}$	3x + 10 < 22 -10 -10
Step 2: Graph the two solut	e <u>union</u> of the tion sets.	$-\frac{4x}{-4} \ge \frac{8}{-4}$	$\frac{3x}{3} < \frac{12}{3}$
		x <u>≤</u> −2	x < 4

Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 6$	<mark>- 10 &lt; 22</mark>
Step 1: Solve eac	h inequality.	$-4x + 6 \ge 14$ or $-6 - 6$	3x + 10 < 22 -10 -10
Step 2: Graph the two solut	e <u>union</u> of the tion sets.	$-\underline{4x} \ge \underline{8}$	$\frac{3x < 12}{3}$
		x <u>≤</u> −2	x < 4



Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 6$	<mark>10 &lt; 22</mark>
Step 1: Solve ea	ach inequality.	$-4x + 6 \ge 14$ or 3	3x + 10 < 22 -10 -10
Step 2: Graph the two solutions	ne <u>union</u> of the ution sets.	$\frac{-4x}{-4} \ge \frac{8}{-4}$	$\frac{10^{-10}}{\frac{3x}{3} < \frac{12}{3}}$
		x <b>≤</b> −2	x < 4



Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or $3x + 6$	<mark>- 10 &lt; 22</mark>
Step 1: Solve eac	ch inequality.	$-4x + 6 \ge 14$ or $\frac{1}{-6}$	3x + 10 < 22 -10 -10
Step 2: Graph th two solu	e <u>union</u> of the tion sets.	$\frac{-4x}{-4} \ge \frac{8}{-4}$	$\frac{3x < 12}{\frac{3}{3} < \frac{12}{3}}$
		x ≤ -2	x < 4



Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or	3x + 10 < 22	
Step 1: Solve ea	ch inequality.	$-4x + 6 \ge 14$	or $3x + 10 < -10$	< 22
Step 2: Graph th two solu	ne <u>union</u> of the ution sets.	$\frac{-4x}{-4} \ge \frac{8}{-4}$	$\frac{-10}{\frac{3x}{3}} < \frac{3x}{3}$	$\frac{10}{12}$
		x <u>≤</u> -2	or x <	4



Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or	3x+10<22	
Step 1: Solve ea	ch inequality.	$-4x + 6 \ge 14$	or $3x + 10 < 2$	22 10
Step 2: Graph th two solu	e <u>union</u> of the ition sets.	$\frac{-4x}{-4} \ge \frac{8}{-4}$	$\frac{10}{3} \times \frac{1}{3}$	2 3
		x <b>≤ −2</b>	or x < 4	ŀ



Type 2: ∹orø	Example:	$-4x + 6 \ge 14$ or 3	x + 10 < 22
Step 1: Solve eac	h inequality.	$-4x + 6 \ge 14$ 0 -6 -6	or $3x + 10 < 22$ -10 - 10
Step 2: Graph the two solut	e <u>union</u> of the tion sets.	$-\frac{4x}{-4} \ge \frac{8}{-4}$	$\frac{3}{3} \times \frac{12}{3}$
		x <b>≤</b> −2	or x < 4



Type 2:	÷orø Example:	$-4x + 6 \ge 14$ or	<mark>3x + 1</mark>	<mark>0 &lt; 22</mark>
Step 1:	Solve each inequality.	$-4x + 6 \ge 14$ -6 -6	or 3x	+10 < 22 -10 -10
Step 2:	Graph the <u>union</u> of the two solution sets.	$\frac{-4x}{-4} \ge \frac{8}{-4}$	-	$\frac{3x}{3} < \frac{12}{3}$
Step 3:	Express the final solution terms of x in simplest form	in x <b>≤ -2</b> n.	or	x < 4



Type 2:	÷orø Example	: <mark>-4x</mark>	<mark>+6≥14</mark>	or 3x	<mark>+ 10 &lt;</mark>	< 22	
Step 1:	Solve each inequality.		$-4x+6 \ge -6$	<u>≥</u> 14 or _6	3x +	10 < 10 -	22 10
Step 2:	Graph the <u>union</u> of the two solution sets.	<b>)</b>	$-\frac{4x}{-4} \ge$	<u>8</u> -4		$\frac{3x}{3}$	$\frac{12}{3}$
Step 3:	Express the final solut terms of x in simplest	ion in form.	x <u>&lt;</u> -	-2 ( x	)r < 4	<b>X</b> < 4	4
	-6 -5 -4 -3 -2	-1 0		<b>└──़</b> → 3 4	$\left  \right  \\ 5 6$	>	

Type 2: ∹orø	Example:	2x - 1 > -5 or	5x + 3 > 18
	<b>–</b>		

Solving Compound Inequalities

Type 2:  $\div$  or  $\phi$ Example:2x - 1 > -5 or 5x + 3 > 18

Solving Compound Inequalities

Type 2: -orø Example:	2x - 1 > -5 or $5x + 3 > 18$
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Step 1: Solve each inequality. 2x - 1 > -5 or 5x + 3 > 18

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$
Step 1: Solve eac	h inequality.	2x - 1 > -5 or $5x + 3 > 18+1 +1$

Type 2: ÷orø	Example:	$2x - 1 \ge -5$ or $5x + 3 \ge 18$
Step 1: Solve each inequality.		2x - 1 > -5 or $5x + 3 > 18+1 +1$
		<u>2x</u>

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$
Step 1: Solve ea	ch inequality.	2x - 1 > -5  or  5x + 3 > 18 +1 +1
		2x > -

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$
Step 1: Solve ea	ch inequality.	2x - 1 > -5  or  5x + 3 > 18 +1 +1
		2x > -4

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$
Step 1: Solve each inequality.		2x - 1 > -5  or  5x + 3 > 18 +1 +1
		$\frac{2x}{2} > \frac{-4}{2}$

Solving Compound Inequalities

Type 2: ÷orø Example:		2x - 1 > -5 or $5x + 3 > 18$							

$$\frac{2x - 1 > -5 \text{ or } 5x + 3 > 18}{\frac{+1 + 1}{\frac{2x > -4}{2}}}$$

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$
Step 1: Solve each	inequality.	2x - 1 > -5 or $5x + 3 > 2$

$$\frac{2x - 1 > -5 \text{ or } 5x + 3 > 18}{\frac{+1 + 1}{2x} > -4}$$

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$
Step 1: Solve eac	h inequality.	2x - 1 > -5 or $5x + 3 > 3$

$$\frac{2x-1 > -5}{+1 + 1} \text{ or } 5x + 3 > 18$$

$$\frac{2x - 4}{2}$$

$$x > -2$$

Solving Compound Inequalities

x > -2

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$	
Step 1: Solve eac	h inequality.	2x - 1 > -5  or  5x + 3 > 1 +1 +1 -3 -	8-3
		$\frac{2x}{2} > \frac{-4}{2}$	

Solving Compound Inequalities

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$

2x - 1 > -5	or	5x + 3 > 18	,
+1 +1	_		1
2x > -4		<b>5</b> x	
$\overline{2}$ $\overline{2}$			
x > -2			

Solving Compound Inequalities

Type 2: ÷orø	Example:	2x - 1 > -5 or $5x + 3 > 18$

2x - 1 > -5	or	5x + 3 > 18
+1 +1	_	-3 -3
2x > -4	_	5x >
$\overline{2}$ $\overline{2}$		
x > -2		

Solving Compound Inequalities

Type 2: ∹orø	Example:	2x - 1 >	-5	or	5x ·	+ 3	>	18	<b>}</b>
Q <sub>1</sub> 1 Q 1	1 • 1•	•	1.	_		_		<b>^</b> .	

2x - 1 > -5	or	5x + 3 > 18
+1 +1	_	-3 -3
2x > -4		5x > 15
$\overline{2}$ $\overline{2}$		
x > -2		
Solving Compound Inequalities

Type 2: ÷orø	Example:	2x - 1 > -5 or $5x + 3 > 18$

2x - 1 > -5	or	5x + 3 >	> 18
+1 +1	_	-3	-3
2x > -4	-	5x >	· 15
$\overline{2}$ $\overline{2}$		5	5
x > -2			

Solving Compound Inequalities

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$

2x - 1 > -5	or	<b>5</b> x	+3:	> 18
+1 +1		_	-3	-3
2x > -4			5x >	> 15
$\overline{2}$ $\overline{2}$			5	5
x > -2			X	

Solving Compound Inequalities

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x + 3 > 18$

2x - 1 > -5	or	<b>5</b> x ·	+3:	> 18
+1 +1	_	_	-3	-3
2x > -4	-		5x >	> 15
$\overline{2}$ $\overline{2}$			5	5
x > -2			x >	>

Solving Compound Inequalities

Type 2: ∹orø	Example:	2x - 1 > -5	or	5x + 3 > 18

2x - 1 > -5	or	5x + 3 >	<b>&gt; 18</b>
+1 +1	_	-3	-3
2x > -4	-	5x >	15
$\overline{2}$ $\overline{2}$		5	5
x > -2		x >	3

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x$	+ 3 > 18
Step 1: Solve	e each inequality.	2x - 1 > -5 or $+1$ +1	5x + 3 > 18 -3 -3
Step 2: Grap two	h the <u>union</u> of the solution sets.	$\frac{2x > -4}{2}$ $x > -2$	$\frac{5x > 15}{5}$ $x > 3$

Type 2: ∹orø	Example:	2x - 1 > -5 or $5x$	<u>+ 3 &gt; 18</u>
Step 1: Solve ea	ch inequality.	2x - 1 > -5 or $+1 + 1$	5x + 3 > 18 -3 -3
Step 2: Graph th two solu	ne <u>union</u> of the ution sets.	$\frac{2x}{2} > \frac{-4}{2}$	$\frac{5x}{5} > \frac{15}{5}$
		x > -2	x > 3



Type 2: ∹orø	Example:	2x-1 > -5	or 5x+	<mark>· 3 &gt; 18</mark>	
Step 1: Solve each	h inequality.	2x - 1 > +1	> -5 or 5 +1	5x + 3 > -3	· 18
Step 2: Graph the	<u>union</u> of the	2x >	-4	$\frac{-3}{5x}$	15
two solut	ion sets.	$\overline{2}$	$\overline{2}$	5	5
		x >	-2	x >	3



Type 2: ∹orø	Example:	2x - 1 > -5	5 or 5x	+ <mark>3 &gt; 18</mark>	
Step 1: Solve eac	h inequality.	2x - 1 + 1	>-5 or +1	5x + 3 > -3	· 18
Step 2: Graph the	e <u>union</u> of the	$\frac{1}{2x}$	> -4	$\frac{5}{5x}$	15
two solut	ion sets.	2	2	5	5
		x >	> -2	x >	3



Type 2: -€	orø Example:	2x - 1 > -5 or	5x + 3 > 18	
Step 1: So	olve each inequality.	2x - 1 > -5 +1 +1	or $5x + 3 > 1$	18 -3
Step 2: G	raph the <u>union</u> of the wo solution sets.	$\frac{2x}{2} > \frac{-4}{2}$	$\frac{5}{5} > 1$	<u>5</u> 5 5
		x > -2	or x > 3	



Type 2: ∹orø	Example:	2x - 1 > -5 or $5x$	x + 3 > 18
Step 1: Solve eac	h inequality.	2x - 1 > -5 or $+1$ +1	r $5x + 3 > 18$ -3 -3
Step 2: Graph the two solut	e <u>union</u> of the tion sets.	$\frac{2x > -4}{2}$ $x > -2$	5x > 15 $5 = 5$ or $x > 3$



Example:	2x - 1 > -5 or	5x + 3 > 18
nequality.	2x - 1 > -5 +1 +1	or $5x + 3 > 18$ -3 -3
<u>nion</u> of the n sets.	$\frac{2x}{2} > \frac{-4}{2}$	$\frac{5x > 15}{5}$
]	Example: nequality. <u>nion</u> of the n sets.	Example: $2x - 1 > -5$ ornequality. $2x - 1 > -5$ nion of the n sets. $2x - 1 > -5$ $+1 + 1$ $2x > -4$ $\overline{2}$ $2x > -4$ $\overline{2}$ $x > -2$



Type 2: $\div$ or $\phi$ Example: <b>2x</b>	-1 > -5 or $5x + 3 > 18$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>union</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

2x - 1 > -5	or	<b>5</b> x	+3:	> 18
+1 +1			-3	-3
2x > -4			5x >	> 15
$\overline{2}$ $\overline{2}$			5	5
x > -2	0]	r	x >	> 3



Type 2: ÷orø Example: <b>2x</b> -	-1 > -5 or $5x + 3 > 18$
-----------------------------------	--------------------------

- Step 1: Solve each inequality.
- Step 2: Graph the <u>union</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

2x - 1 > -5	or	<b>5</b> x	+3:	> 18
+1 +1	_		-3	-3
2x > -4	-		5x >	> 15
$\overline{2}$ $\overline{2}$			5	5
x > -2	0	r	x >	> 3





Solving Compound Inequalities

Type 2:  $\div$  or  $\phi$ Example: x + 1 < 5 or 3x > -9

Solving Compound Inequalities

Type 2:  $\div$ orøExample:x + 1 < 5 or 3x > -9

Solving Compound Inequalities

Type 2: ÷orø	Example:	x + 1 < 5 or $3x > -9$
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Step 1: Solve each inequality. x + 1 < 5 or 3x > -9

Type 2: -0	rø Example:	x + 1 < 5 or	3x > -9
Step 1: So	lve each inequality.	x + 1 < 5 -1 -1	or 3x > -9

Type 2: ∹orø	Example:	x + 1 < 5 or $3x > -9$
Step 1: Solve each inequality.		x + 1 < 5 or $3x > -9-1 -1$
		X

Type 2: ∹orø	Example:	x + 1 < 5 or $3x > -9$
Step 1: Solve each inequality.		x+1 < 5 or $3x > -9-1 -1$
		x <

Type 2: ∹orø	Example:	x + 1 < 5 or $3x > -9$
Step 1: Solve each inequality.		x+1 < 5 or $3x > -9-1 -1$
		x < 4

Type 2: ∹orø	Example:	x + 1 < 5 or $3x > -9$
Step 1: Solve eac	ch inequality.	$\underbrace{x+1 < 5 \text{ or } 3x > -9}_{-1 \ -1}  \frac{3x}{3} > \frac{-9}{3}$
		x < 4

Type 2: ∹orø	Example:	x + 1 < 5 or $3x > -9$	)
Step 1: Solve ead	ch inequality.	$\begin{array}{c} x + 1 < 5 \text{ or } 3x \\ -1 & -1 \end{array}$	> -9/3
		x < 4 x	

Type 2: ∹orø	Example:	x + 1 < 5 or 3	5 <sub>x</sub> > -9	
Step 1: Solve ead	ch inequality.	x + 1 < 5 0 -1 -1	or $\frac{3x}{3} > \frac{3x}{3}$	<u>-9</u> 3
		x < 4	x >	

Type 2: ∹orø	Example:	x+1 < 5 or $3x > 3$	<mark>-9</mark>
Step 1: Solve eac	ch inequality.	x + 1 < 5 or <u>-1 -1</u>	$\frac{3x}{3} > \frac{-9}{3}$
		x < 4	x > -3

Type 2	: ÷orø	Example:	<b>x</b> + 1	<5 or	3x >	<mark>&gt; -9</mark>	
Step 1:	Solve each i	nequality.	X	+1<5	or	$\frac{3x}{3} >$	- <u>9</u> 3
Step 2:	Graph the <u>u</u> two solution	<u>nion</u> of the n sets.		<u>x &lt; 4</u>	_	x >	3

Type 2: ∹orø	Example:	x + 1 < 5 or 3	x > -9
Step 1: Solv	e each inequality.	x + 1 < 5 (	or $\frac{3x}{3} > -\frac{9}{3}$
Step 2: Grap two	oh the <u>union</u> of the solution sets.	$\frac{\mathbf{x}}{\mathbf{x}} < 4$	x > -3



Type 2:	÷orø	Example:	x + 1 < 5 or	3x > -9	
Step 1: 3	Solve each in	nequality.	x + 1 < 5 -1 -1	or $\frac{3x}{3} >$	- <u>9</u> 3
Step 2:	Graph the <u>ur</u> two solution	<u>nion</u> of the sets.	$\frac{1}{x < 4}$	x > -3	3



Type 2: ∹orø	Example:	x + 1 < 5 or 3	x > -9
Step 1: Solve each	h inequality.	x + 1 < 5  0 -1 -1	or $\frac{3x}{3} > \frac{-9}{3}$
Step 2: Graph the two solut	union of the ion sets.	$\frac{1}{x < 4}$	x > -3



Type 2: ∹or	<i>cø</i> Example:	x + 1 < 5 or $3x > -9$
Step 1: So	lve each inequality.	x+1 < 5 or $3x > -9-1 -1 3x > -9$
Step 2: Gr tw	aph the <u>union</u> of the or solution sets.	x < 4 or $x > -3$



Type 2:	: ÷orø	Example:	x + 1 < 5 or $3x$	<mark>&gt; -9</mark>
Step 1:	Solve each	inequality.	x + 1 < 5 or -1 -1	$\frac{3x}{3} > \frac{-9}{3}$
Step 2:	Graph the <u>u</u> two solutio	nion of the n sets.	$\frac{1}{x < 4} \text{ or}$	x > -3



Type 2:	∹orø	Example:	x + 1 < 5 or $3x > -9$
Step 1:	Solve each i	inequality.	x + 1 < 5 or $3x > -9-1 -1 3x > -9$
Step 2:	Graph the <u>u</u> two solution	<u>nion</u> of the n sets.	x < 4 or $x > -3$



Solving Compound Inequalities

Type 2: -orø Example:	x + 1 < 5 or $3x > -9$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>union</u> of the two solution sets.

 $\frac{x+1 < 5 \text{ or } 3x > -9}{-1 - 1}$ x < 4 or x > -3

Step 3: Express the final solution in terms of x in simplest form.



Solving Compound Inequalities

Type 2. $\neg 10$ Example. $x + 1 > 3$	or $3x > -9$
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- Step 1: Solve each inequality.
- Step 2: Graph the <u>union</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

 $\frac{x+1 < 5 \text{ or } 3x > -9}{-1 - 1}$ x < 4 or x > -3

x can be any number.



Solving Compound Inequalities

Type 2: ∹orø	Example:	x + 1 < 5 or $3x > -9$
• -	<b>1</b>	

- Step 1: Solve each inequality.
- Step 2: Graph the <u>union</u> of the two solution sets.
- Step 3: Express the final solution in terms of x in simplest form.

 $\frac{x+1 < 5 \text{ or } 3x > -9}{-1 - 1}$ x < 4 or x > -3

x can be any number.

Good luck on your homework !!

-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6