

Balancing Inequalities w/ Addition/Subtraction (3-4)

<i>inequality</i>	Decode <i>in·e·qual·ity</i>
Definition $>$ is greater than $<$ is less than \geq is greater than or = to \leq is less than or = to	Example $x \leq 6$ "X is less than or = to six"

↘

<i>solution of an inequality</i>	
Definition a set of #'s that make an inequality true	Example $x = 1$ $2x + 4 \geq -2$ $2 \cdot 1 + 4 \geq -2$ $2 + 4 \geq -2$ $6 \geq -2$ yes

✓

Example 1: Tell whether the given number is a solution.

We Do
$-3x + 15 \leq 2x + 27 \quad \text{when } x = 5$ $-3 \cdot 5 + 15 \leq 2 \cdot 5 + 27$ $-15 + 15 \leq 10 + 27$ $0 \leq 37 \quad \checkmark$ <p style="text-align: center;">yes</p>

Example 2: Write an inequality for each statement.

I Do	You Do
$17 + n \leq 22$ Seventeen increased by a number is less than or equal to 22.	$-2.1 - x > 12$ Negative two and one tenth decreased by a number is greater than twelve.
$17 + n \leq 22$	$-2.1 - x > 12$

3-4 WS

- #5 $9.4 + n \leq 14.1$
 #6 $32 + x - 18 > -3$
 #7 $0.6 + 4.7 + n \geq -5.6$

$$x < 3$$

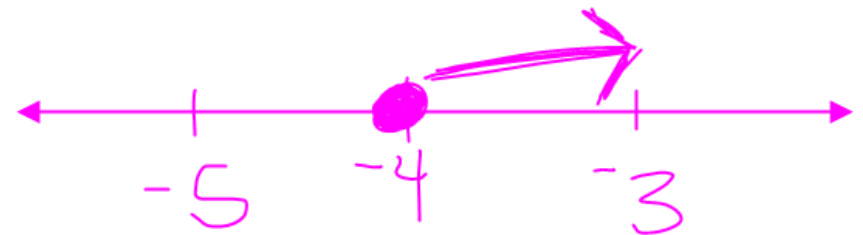

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open circle ○

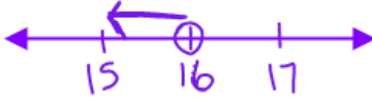

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closed circle ●

$$x \geq -4$$



Example 3: Solve the inequality. Then, graph.

I Do	You Do
$t - 4 < 12$ $\downarrow +4$ $t < 16$ 	$2x + 14 \geq 28$ $\downarrow -14$ $\frac{2x}{2} \geq \frac{14}{2}$ $x \geq 7$ 

I Do	You Do
$2t - t + 5 > 15$	$7x + 14 - 3x \geq 22$ \downarrow $\frac{4x + 14}{-14} \geq \frac{22}{-14}$ $\frac{4x}{4} \geq \frac{8}{4}$ $x \geq 2$