

Algebra 1 5.3 *7th grade standard
Solve multi-step linear inequalities* $\leq$ $\geq$
Use the distributive property to solve linear inequalities*

order of operations
distributive property
inequality
empty set
all real numbers
Whiteboards
Triangle puzzle

Whiteboards

Example 2 Inequality Involving a Negative Coefficient

Solve $-11y - 13 > 42$. Graph the solution on a number line.

$$\begin{array}{r} -11y > 55 \\ \hline -11 \quad -11 \\ \hline y < -5 \end{array}$$

$$\mathbf{2A.} \ 23 \geq 10 - 2w$$

$$\quad -10 \quad -10$$

$$\frac{13}{-2} \geq \frac{-2w}{-2}$$

$$-6.5 \leq w$$

$$w \geq -6.5$$

$$2B. \underset{-11}{43} > -4y + \underset{-11}{11}$$

$$\underset{-4}{32} > \underset{-4}{-4y}$$

$$-8 < y$$

$$y > -8$$

Square puzzle

Guided Practice

3. Two more than half of a number is greater than twenty-seven.

$$\begin{array}{rcl} 2 + \frac{1}{2} \cdot n & > & 27 \\ -2 & & -2 \\ \hline \frac{1}{2} \cdot \frac{1}{2} \cdot n & > & 25 \cdot \frac{2}{1} \\ n & > & 50 \end{array}$$

Example 4 Distributive Property

Solve $4(3t - 5) + 7 \geq 8t + 3$. Graph the solution on a number line.

$$12t - 20 + 7 \geq 8t + 3$$

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$$\begin{array}{r} 12t - 13 \geq 8t + 3 \\ -8t \qquad -8t \\ \hline \end{array}$$

$$4t - 13 \geq 3$$

$$\begin{array}{r} 4t - 13 \geq 3 \\ +13 \quad +13 \\ \hline \end{array}$$

$$4t \geq 16$$

$$\begin{array}{r} \overline{4} \quad \overline{4} \end{array}$$

$$t \geq 4$$

4A. $6(5z - 3) \leq 36z$

4B. $2(h + 6) > -3(8 - h)$

b. $3(4m + 6) \leq 42 + 6(2m - 4)$

Solve each inequality. Check your solution.

5A. $18 - 3(8c + 4) \geq -6(4c - 1)$

5B. $46 \leq 8m - 4(2m + 5)$

