

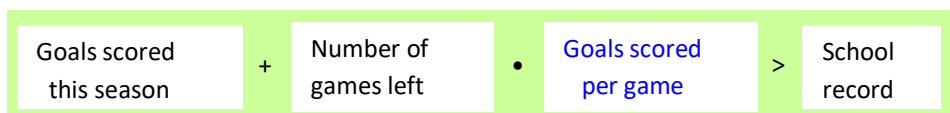
Solving Multi-Step Inequalities

Your school's soccer team is trying to break the school record for goals scored in one season. Your team has already scored 88 goals this season. The record is 138 goals. With 10 games remaining on the schedule, how many goals, on average, does your team need to score per game to break the record?

To solve a multi-step inequality like $2x + 1 > 5$, you should use the properties of inequality to get the variable terms on one side of the inequality and the constant terms on the other side.

Find the average number of goals your team needs to score per game to break the school record, as described above.

Let g represent the average number of goals scored per game. Write a verbal model.



$$88 + 10g > 138$$

Substitute.

$$88 + 10g - 88 > 138 - 88$$

Subtract 88 from each side.

$$10g > 50$$

Simplify.

$$\frac{10g}{10} > \frac{50}{10}$$

Divide each side by 10.

$$g > 5$$

Simplify.

Your team must score, on average, more than 5 goals per game.

Example 1: Solve $\frac{x}{-4} - 6 \geq -5$

$$\frac{x}{-4} - 6 \geq -5$$

Original inequality.

$$\frac{x}{-4} - 6 + 6 \geq -5 + 6$$

Add 6 to each side.

$$\frac{x}{-4} \geq 1$$

$$-4 \bullet \frac{x}{-4} \leq 1 \bullet -4$$

Multiply each side by -4 .

$$x \leq -4$$

Simplify.