

GSE Algebra 1

Unit 1—Equations and Inequalities

Notes

Name \_\_\_\_\_

Date \_\_\_\_\_

## Creating Inequalities

Greater than >	Greater than or equal to ≥	Less than <	Less than or equal to ≤
More than	No less than	Below	At most
Above	Not under	Smaller than	Does not exceed
Exceeding	No fewer than	Fewer than	Not above
Larger than	At least		No more than
	Minimum		Maximum

### Steps for solving inequality word problems:

1. Highlight or underline the important information in the problem.
2. Identify your variable.
3. Determine whether you need to use  $<$ ,  $\leq$ ,  $>$ , or  $\geq$  and write your inequality.
4. Solve the inequality.
5. Justify your answer (plug in your answer and make sure it works!)

Example problem:

Keith has \$500 in a savings account at the beginning of the summer. He wants to have at least \$200 in the account by the end of the summer. He withdraws \$25 each week for food, clothes, and movie tickets.

• Write an inequality that represents Keith's situation.  $500 - 25x \geq 200$

• How many weeks can Keith withdraw money from his account? Justify your answer.

$$\begin{array}{r}
 201 \checkmark \\
 200 \checkmark \\
 199 \times \\
 \hline
 500 - 25x \geq 200 \\
 \underline{-500} \qquad \underline{-500} \\
 \hline
 -25x \geq -300 \\
 \times \quad \underline{-25} \qquad \underline{-25} \\
 \hline
 x \leq 12
 \end{array}$$

Walk-through of how to solve this problem:

**Step 1:** Highlight the important information in this problem.  
 \*\* At least is the key word that notes that this problem must be written as an inequality.

**Step 2:** Identify your variable. What don't you know? The question verifies that you don't know how many weeks.

Let  $w$  = number of weeks.