

# 5.2

(6) CST items

Students solve multistep problems, including word problems, involving ~~linear equations and~~ linear inequalities in one variable and provide justification for each step.

## Key Vocabulary

Linear

Inequality

Justification

Independent Variable

Dependent Variable

“Greater than”

“Less than”

“Or equal to”

## Instructional Objectives

1	Solve multistep linear inequalities for all values of an unknown variable.	1	Solve for $x$ : $3(x + 5) > 2x + 35$
		2	Solve for $x$ : $2x + x + 3x < 120$
		3	Solve for $n$ : $360 < 120 + 60n$
		4	Solve for $n$ : $2n + 2(n + 3) > n - 9$
2	Create and solve inequalities to model verbal scenarios and word problems.	1	Write an inequality to model the following: The weight ( $w$ ) in an elevator must be less than 800 pounds.
		2	Write an inequality to model the following, and then solve: The number of prisoners ( $p$ ) in a jail can be at most twice the number of jail cells ( $c$ ). How many prisoners can there be in the jail if there are 100 jail cells?
		3	Write an inequality to model the following, and then solve: Sarah’s monthly income ( $i$ ) must be at least three times her monthly house payment ( $p$ ). If Sarah’s monthly house payment is \$1400, what must be her monthly income?
		4	Write an inequality to model the following, and then solve: The number of waiters ( $w$ ) in a restaurant must be more than $\frac{1}{8}$ the number of guests ( $g$ ). If there are 40 guests, how many waiters must be in the restaurant?
3	Solve inequalities that require dividing both sides of an inequality by a negative number and reversing the direction of the inequality.	1	Solve for $x$ : $5x - 7 \geq 2x + 5$
		2	Solve for $x$ : $-4(x + 1) < 24$
		3	Solve for $n$ : $6n + 2 + -9n > -31$
		4	Solve for $n$ : $-\frac{3}{4}n - 7 \leq 14$