6.1-6.3: Solving Inequalities
Study Guide

6.1-6.3: Solve Inequalities by Multiplication and Division:

Solve each inequality and graph your solution on a number line.

Ex: \(2x - 1 \geq 7\) \hspace{1cm} \(x \geq 4\)

Ex: \(-5 \geq 2x - 3\) \hspace{1cm} \(-1 \geq x\)

Ex: \(18 > -4x + 2\) \hspace{1cm} \(-4 < x\)

\[\begin{array}{ccc}
\text{Ex: } 712 & \geq & -x \\
\text{Ex: } 325 & \geq & -x \\
\text{Ex: } 2418 & > & -x
\end{array}\]

6.3*: Solve Multi-Step Inequalities:

Solve each inequality.

Ex: \(6(2x + 3) \geq 9(x + 2)\) \hspace{1cm} \(x \geq 0\)

Ex: \(3(4x - 2) < 2(6x - 2)\) \hspace{1cm} \text{any number}

Ex: \(-2(x + 4) \geq -2x - 3\) \hspace{1cm} \text{No solution}

Ex: \(-4(x - 2) \geq -x + 16\) \hspace{1cm} \(x \leq -\frac{8}{3}\)

Ex: The photography club at your school decides to publish a calendar to make money. The cost to make all of the calendars is $600 and they plan to sell the calendars at $5.50 each. The club wants to make at least $1200.

a) Write an inequality to show the number of calendars the photography club would need to sell in order to meet their goal.

\[5.5x - 600 \geq 1200\]

b) Solve your inequality.

\[x \geq 327.3\]

c) Explain using 3-5 complete sentences, what the solution means, including possible numbers of calendars the club could sell and one possible number of calendars that would not work.

Include in your solution that \(x\) must be greater than or equal to 327.3, which means that the club would need to sell at least 328 calendars or much. Provide possible numbers of calendars they could sell and provide possible numbers they could not.