Chapter 6: Solving Linear Inequalities
Study Guide

6.1-6.3: Solve Inequalities by Multiplication and Division:

Solve each inequality and graph your solution on a number line.
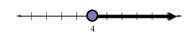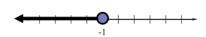
Ex: $2x - 1 \geq 7$ **Ex:** $-5 \geq 2x - 3$ **Ex:** $18 > -4x + 2$

$x \geq 4$ $-1 \geq x$ $-4 < x$

6.3*: Solve Multi-Step Inequalities:

Solve each inequality.

Ex: $6(2x + 3) \geq 9(x + 2)$ **Ex:** $3(4x - 2) < 2(6x - 2)$

$x \geq 0$ any number

Ex: $-2(x + 4) \geq -2x - 3$ **Ex:** $-4(x - 2) \geq -x + 16$

No solution $x \leq -\frac{8}{3}$

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.
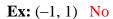
Include in your solution that x must be greater than or equal to 327.3, which means that the club would need to sell at least 328 calendars or much. Provide possible numbers of calendars they *could* sell and provide possible numbers they could *not*.
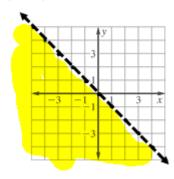
<u>**6.7: Graph Linear Inequalities in Two Variables:**</u>

Decide if an ordered pair is a solution to an inequality.
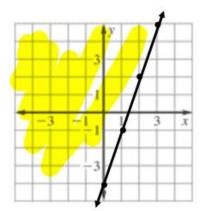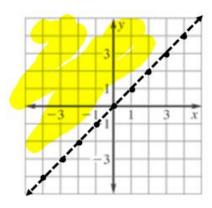
Ex: $\dfrac{3}{4}x - \dfrac{1}{3}y < 6$; $(-8, 12)$

Ex: $(-1, 1)$ No

Yes

Graph linear inequalities in two variables.

Ex: $y \geq 3x - 4$

Ex: $x < y$

Ex: A concert promoter needs to take in at least $380,000 from ticket sales. The promoter charges $30 for floor seats and $20 for bleacher seats.
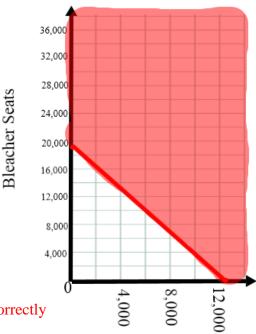
a) Write an inequality to represent the situation.

   $30x + 20y \geq 380{,}000$

b) Graph the inequality.

   Use x and y intercepts. Test the origin.

c) Identify a possible combination that would allow the promoter to meet his goal.
   *choose anything from the shaded region and be sure to label correctly