Linear Inequalities LI5

Solving and Graphing One-Step Inequalities

Explore

Name KEY

Date _____ Period _____

To solve a linear inequality:

a. Solve the inequality the same way you would an equation.

b. Remember when multiplying or dividing by a negative # to reverse (flip) the inequality symbol.

c. Graph the inequality on a number line.

1. At an online bookstore, Mary bought 6 copies of the same book for herself and her friends. She received free shipping because the total was over $45.

   Write and solve an inequality that could be used to find the minimum cost of each book.

   b: book

   $6b > 45$

   $\frac{6b}{6} > \frac{45}{6}$

   $b > \$7.50$

   ↳ more than $7.50

   $7.51

Solve and graph each inequality.

2. $y + 14 \geq 32$

   $-14 \quad -14$

   $y \geq 18$

3. $\frac{x}{-3} \leq 7$

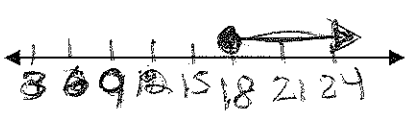
   $\left(\frac{x}{-3}\right)(-3) \leq 7(-3)$

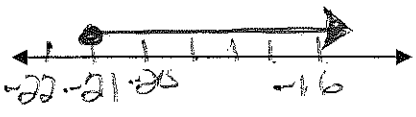
   $x \geq -21$

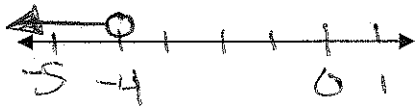
4. $-24 > 6a$

   $\frac{-24}{6} > \frac{6a}{6}$

   $-4 > a$ or $a < -4$







5. Which inequality symbols needed to be switched in problems 1 - 5? Why?

   #3 because it was multiplying using a negative number

6. Give two examples of inequalities where the symbol needs to be switched.

   ① $-8b > 32$

   $\frac{-8b}{-8} < \frac{32}{-8}$ ★

   $b < -4$

   ② $-\frac{1}{3}x \leq 5$

   $(-3)\left(-\frac{1}{3}x\right) \geq 5(-3)$ ★ flip

   $x \geq -15$

Choose the inequality or equation that best matches the situation.

7. Mr. Samuels works for a real estate office that pays its agents 7% of their sales. How much real estate will Mr. Samuels have to sell to earn a minimum of $4,200?

.07 • s

≥

A. $0.07 + s < 4200$ B. $0.07s \leq 4200$ C. $\frac{s}{0.07} n = 4200$ (D) $0.07s \geq 4200$

8. Stacy is making punch for a party. She has 225 oz of punch and is serving it in 5 oz cups. Stacy wrote the inequality $225 \geq 5n$ to find the maximum number of cups of punch she can serve. Solve Stacy's inequality.

$\frac{225}{5} \geq \frac{5n}{5}$

$45 \geq n$

cups

9. Find the student that solved the inequality correctly. Identify the errors of the other two.

Error Xavier	Yolanda	Zorie
$4 - x > 10$ $-4 \quad -4$ $-x > 6$	Correct ☆ $4 - x > 10$ $-4 \quad -4$ $-x > 6$ $-1 \quad -1$ $x < -6$	$4 - x > 10$ $-4 \quad -4$ $-x > 6$ $-1 \quad -1$ $x > -6$ Error must reverse symbol

Solve and graph each inequality.

10. $x + 14 < -16$

$-14 \quad -14$

$x < -30$

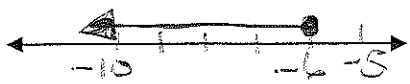
11. $5 \geq 11 + z$

$-11 \quad -11$

$-6 \geq z$ or $z \leq -6$

12. $\frac{k}{5} > -8$

$k > -40$



13. $\frac{96}{-8} \leq \frac{-8p}{-8}$

$-12 \geq p$ ☆ reverse symbol

EP: pg. 177 #7-12 and pg. 184 #57-62,64