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

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

$$b > \$7.50$$

$$\boxed{\$7.50}$$

Solve and graph each inequality.

2. $y + 14 \geq 32$

$ -14 \quad -14$

$y \geq 18$

3. $\frac{x}{3} \leq 7 \,(-3)$ ✗ (-3)

$x \geq -21$

4. $-24 > 6a$

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

$-4 > a$ or $a < -4$
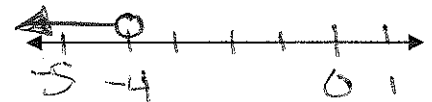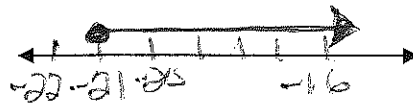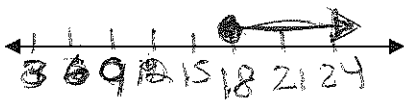
5. Which inequality symbols needed to be switched in problems 1 - 5? Why?

#3 because it was multiplying by a negative.

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

① $-8b > 32$

② $-\frac{1}{3}x \leq 5$

Choose the inequality or equation that best matches the situation.

.07 ∘ S

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?

A. $0.07 + s < 4200$ B. $0.07s \leq 4200$ C. $\dfrac{s}{0.07}n = 4200$ (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.

$$\frac{225}{5} \geq \frac{5n}{5}$$
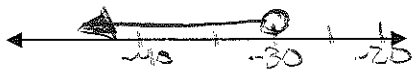
$$45 \geq n$$

cups

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

Error

Xavier	Yolanda	Zorie
$4 - x > 10$ $-4 \quad -4$ $-x > 6$	$4 - x > 10$ $-4 \quad -4$ $\dfrac{-x}{-1} > \dfrac{6}{-1}$ $x < -6$	$4 - x > 10$ $-4 \quad -4$ $\dfrac{-x}{-1} > \dfrac{6}{-1}$ $x > -6$

correct ✗

Error must reverse symbol

Solve and graph each inequality.

10. $x + 14 < -16$
$\quad -14 \quad -14$
$\quad x < -30$

11. $5 \geq 11 + z$
$\quad -11 \quad -11$
$\quad -6 \geq z$ or $z \leq -6$

12. $(5)\dfrac{k}{5} > -8(5)$
$\quad k > -40$

13. $\dfrac{96}{-8} \leq \dfrac{-8p}{-8}$ ⭐ reverse symbol
$\quad -12 \geq p$

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