

Name _____

Date _____ Pd. _____

Notes: Solving One-Step Inequalities

Identify each of the following as an equation, expression, or inequality

$3x + 4$

$3x + 4 = 7$

$3x + 4 = (2x + 1) + (x + 3)$

$3x + 4 \leq 7$

$3x + 4 \geq 5x - 2$

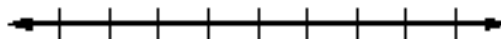
Expression – _____

Equation – _____

Inequality – _____

Example

Solve $3a + 5 > 4 + 2a$. Then graph it on a number line.



Multiplication Property of Inequalities

For all numbers a , b , and c , with $c \neq 0$,

1. if c is positive and $a > b$, then _____
if c is positive and $a < b$, then _____
2. if c is negative and $a > b$, then _____
if c is negative and $a < b$, then _____

Example 1 Solve $-\frac{y}{8} \geq 12$.

Example 2 Solve $\frac{3}{4}k < 15$.

Example Solve $-12y \geq 48$.

$4 < 7$	$16 > -4$	$-10 < 5$
$4(-3) \quad 7(-3)$	$(16) \div (-2) \quad (-4) \div (-2)$	$(-10)(3) \quad (5)(3)$
$-12 \bigcirc -21$	$-8 \bigcirc 2$	$-30 \bigcirc 15$

Multiplying or Dividing an Inequality by a Negative Number

If each side of a true inequality is multiplied or divided by the same _____, the direction of the inequality symbol must be _____ so that the resulting inequality is also true

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Exit Card: Solving One-Step Inequalities

1. Eva bought 5 pairs of identical socks and a \$6.50 hairbrush. The total cost for the items was less than \$29. Which of these inequalities best describes the cost (c) of each pair of socks?

- A $c < \$4.50$
- B $c > \$4.50$
- C $c < \$7.10$
- D $c > \$7.10$

2. Manuel has budgeted \$80 a day to rent a truck. The rental company charges \$35 a day plus \$0.25 per mile. Which of these inequalities represents the number of miles (m) Manuel can drive in one day and stay within his budget?

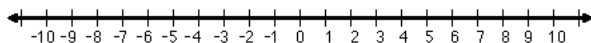
- F $m \leq 180$
- G $m \geq 180$
- H $m \leq 460$
- J $m \geq 460$

Name _____

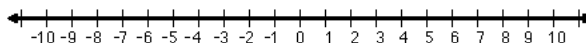
Date _____ Pd. _____

Homework: Page 322 (24 – 27, 46, 48, 49)

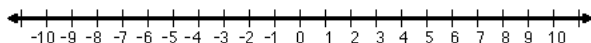
24. $5 < 3 + g$



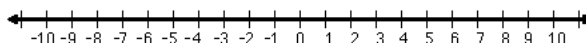
25. $4 > 8 + r$



26. $-3 \geq q - 7$



27. $2 \leq m - 1$



46. Adult Nile crocodiles weigh up to 2200 pounds. If a young Nile crocodile weighs 157 pounds, how many pounds might it be expected to gain in its lifetime?

48. There are 3500 species of bees and more than 600,000 species of insects. How many species of insects are not bees?

49. City Bank requires a minimum balance of \$1500 to maintain from checking services. If Mr. Hayashi knows he must write checks for \$1300 and \$947, how much money should he have in his account before writing the checks?

Homework: Pages 329-330 (13–21, 45–48)

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|----------------------------|--|
| 13. $\frac{1}{5}n > 10$ | a. Five times a number is less than or equal to ten. |
| 14. $5n \leq 10$ | b. One fifth of a number is no less than ten. |
| 15. $5n > 10$ | c. Five times a number is less than ten. |
| 16. $-5n < 10$ | d. One fifth of a number is greater than ten. |
| 17. $\frac{1}{5}n \geq 10$ | e. Five times a number if greater than ten. |
| 18. $5n < 10$ | f. Negative five times a number is less than ten. |

19. $6g \leq 144$

20. $7t > 84$

21. $-14d \geq 84$

45. The area of a rectangle is less than 85 square feet. The length of the rectangle is 20 feet. What is the width of the rectangle?

46. The Middletown Marching Mustangs want to make at least \$2000 on their annual mulch sale. The band makes \$2.50 on each bag of mulch that is sold. How many bags of mulch should the band sell?

47. Juan's long-distance phone company charges him 9¢ for each minute or any part of a minute. He wants to call his friend, but he does not want to spend more than \$2.50 on the call. How long can he talk to his friend?

48. The County Corner Reception Hall does not charge a rental fee as long as at least \$2000 is spent on food. Shaniqua is planning a class reunion. If she has chosen a buffet that costs \$28.95 per person, how many people must attend the reunion to avoid a rental fee for the hall?