SOLVING INEQUALITIES

AGENDA

Warm-Up

HW Check

Translating Inequalities

HW: Punchline 9.5

OBJECTIVE

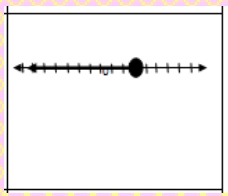
You will solve and practice translating words into algebraic inequalities.

WARM UP

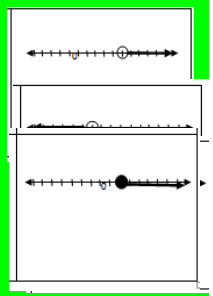
Card Match

Match the corresponding sentence to the inequality, to the solution, to the graph of the solution (4 cards in a set)

Write work in the Tuesday box - yes this is a grade!!

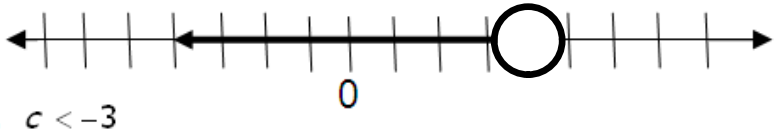
Negative four times a number is no less than 4.	$2x \leq 4$	$x > 5$	

The difference of a number and two is greater than three.	$x-2>3$	$x>5$
Three-fourths of a number is at most negative two.	$\frac{3}{4}x\le -2$	$x\le \frac{-8}{3}$
The quotient of - and a number is a least negative two	$\frac{x}{-4}\ge -2$	$x\le 8$
Negative four times a number is no less than 4.	$-4x\ge 4$	$x<-1$
Twice a number is nc more than 4.	$2x\le 4$	$x\le 2$
The product of a number and three is at most 2.	$3x\le 2$	$x\ge \frac{2}{3}$

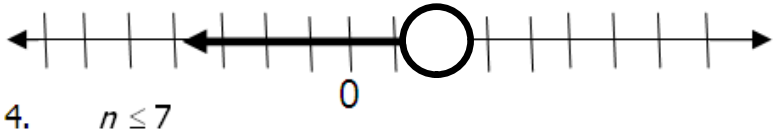


Answers:

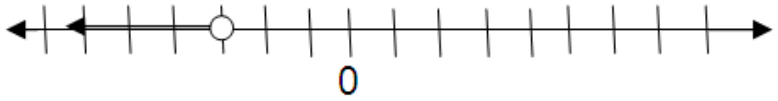
1. $x < 4$



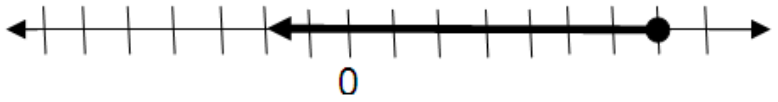
2. $a < 2$



3. $c < -3$



4. $n \leq 7$



5. $p \leq -\frac{3}{2}$
6. $m < 24$ $24 > m$
7. $t < -19$
8. $e > -12$
9. $k \leq 35$
10. $x > -7$
11. $x \geq 54$ → $\frac{2}{3}x - 27 \geq 29$
12. $x \geq 4$ → $2(x+3) \leq 6x - 10$
13. $n > -21$ → $x + 84 > -3x$
14. C
15. $m \leq \frac{16}{5}$
16. C

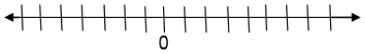
Algebra I - Unit 1: Topic 2 – Solving Multi-Step Inequalities

Practice - Solving Multi-Step Inequalities **pp 188-190**

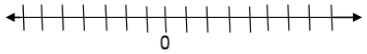
Name_____ Date_____Per_____

Solve the following inequalities. Graph each answer on the number line provided. Remember to check your work.

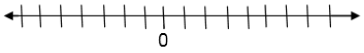
1. $-11 - 9x > -47$



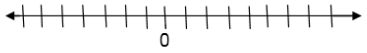
2. $7a - 5 < 9$



3. $10c + 11 < 5 + 8c$



4. $4n - 6 \geq 6n - 20$



Solve each inequality and check your answer.

5. $5p - (p - 6) \leq 0$

6. $15 > \frac{2m}{3} - 1$

7. $\frac{t+3}{2} < -8$

$2 \cdot \frac{t+3}{2} < -8 \cdot 2$

$t + 3 < -16$

$-3 \quad -3$

$t < -19$

8. $\frac{5e}{6} + 7 > -3$

$-7 \quad -7$

$\frac{5e}{6} > -10$

$6 \cdot \frac{5e}{6} > -10 \cdot 6$

$\frac{5e}{5} > \frac{-60}{5}$

$e > -12$

Algebra I - Unit 1: Topic 2 – Solving Multi-Step Inequalities

Solve each inequality and check your answer.

9. $-3 - \frac{k}{5} \geq -10$

10. $\frac{-3x-1}{5} < 4$

Define a variable, write an inequality, and solve each problem. Then check your solution.

11. Two-thirds of a number decreased by 27 is at least 9.

12. Twice the sum of a number and three is at most six times the same number less ten.

13. The sum of a number and 84 is greater than the product of -3 and the same number.

14. Carol is buying asparagus and bananas at the grocery store. Asparagus costs $3.00 per pound and bananas cost $0.50 per pound. Which inequality best represents the number of pounds of asparagus, a, and bananas, b that Carol can purchase with at most $20.00.

A $3a + 0.5b < 20$
B $3a + 0.5b > 20$
C $3a + 0.5b \leq 20$
D $3a + 0.5b \geq 20$

15. Solve the following inequality: $-3(4 - m) \geq 2(4m - 14)$

16. The county water department charges a monthly administrative fee of $10.40 plus $0.0059 for each gallon of water used. Glen's family always pays more than $35 each month for water. Which inequality best represents the number of gallons of water, g, Glen's family uses each month?

A $10.4g + 0.0059 > 35$
B $10.4g - 0.0059 < 35$
C $0.0059g + 10.4 > 35$
D $0.0059g - 10.4 < 35$

Mix and Match

Match the verbal sentence with the algebraic sentence.

Then fill in the graphic organizer with the appropriate words.
Glue on page 21.

Translating words into Inequalities

$<$	• is less than	$>$	• is greater than
$\leq$	• is less than or equal to • is at most • is no more than	$\geq$	• is greater than or equal to • is at least • is no less than

Did You Hear About . . .

1	2 GIRL	3	4	5	6	7	8
9	10	11	12	13	14	15	??

Solve each inequality or problem. Write the word under the correct solution in the box containing the exercise number.

Answers 1-7

$x \geq 44$	OFTEN
$x \leq -2\frac{1}{2}$	AND
$x > 15$	HER
$x > 4\frac{1}{3}$	THE
$x < -7$	MONKEYS
$x > 13$	GUY
$x \geq 58$	MET
$x \geq 8$	WHEN
$x \leq -2$	GIRL
$x \geq 5$	IN
$x \leq -4\frac{2}{3}$	FRIENDS
$x < -4$	WHO

1 $7x + 2 > 4x + 15$

2 $10 - 3x \geq 5x + 26$

3 $9x + 40 \leq 15 - x$

4 $3(x - 7) > 18$

5 $75 < -5(4x + 1)$

6 $6(2x - 9) \geq 4 + 11x$

7 $8 - 3(4x - 1) \leq -49$

8 $2(t + 5) > 4t - 7(t + 3)$

9 $-4(3t - 9) \geq 8(-8 - t)$

10 $14 - (9t - 2) < -t + 30$

11 $45 > 12t + 3(t - 8) - 6$

12 $5(8 - 2t) \leq 2 + 16(4 + t)$

13 $7(5t - 4) - (2 + 15t) < 60$

14 $9(9t - 4) \geq 12(12t - 3)$

15 Suppose you write a book. The printer charges $4 per book to print it, and you spend $3500 on advertising. You sell the book for $15 a copy. How many copies must you sell so that your income from sales is greater than your total cost?

Answers 8-15

$t > -1\frac{3}{4}$	DOOR
$t < 8$	SPINNING
$t \leq 0$	AROUND
≥ 308	CIRCLES
$t \leq 25$	REVOLVING
$t \geq -1$	STARTED
$t \leq 3\frac{1}{3}$	IN
≥ 319	TOGETHER
$t < 5$	AND
$t > -6\frac{1}{5}$	A
$t < 4\frac{1}{2}$	GOING
$t \geq -3$	DIZZY

Inequalities:
Solving Inequalities With Parentheses and/or the Variable on Both Sides

9.5