

Name _____ Period: _____

Packet 22: Inequality Word Problems

Represent each of the following as an algebraic inequality.

- 1) x is at most 30 _____
- 2) the sum of $5x$ and $2x$ is at least 14 _____
- 3) the product of x and y is less than or equal to 4 _____
- 4) 5 less than a number y is under 20 _____

1st: Read carefully and underline key words
2nd: Write a let statement
3rd: Determine whether to use $<$, \leq , $>$, or \geq
4th: Write and solve the inequality



5) If 5 times a number is increased by 4, the result is at least 19. Find the least possible number that satisfies these conditions.

6) The sum of twice a number and 5 is at most 15. What are the possible values for the number?

- 7) The cost of a gallon of orange juice is \$3.50. What is the maximum number of containers you can buy for \$15?



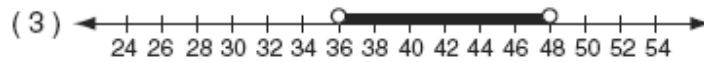
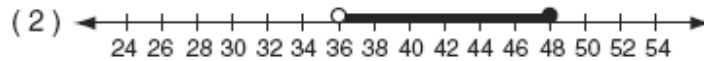
- 8) Three times a number increased by 8 is no more than the number decreased by 4. Find the number.

- 9) Two-thirds of a number plus 5 is greater than 12. Find the number.

Inequality Word Problem Homework
Integrated Algebra

Name _____

____1) In order to be admitted for a certain ride at an amusement park, a child must be greater than or equal to 36 inches tall and less than 48 inches tall. Which graph represents these conditions?



____2) Which statement is modeled by $2p + 5 < 11$?

- (1) The sum of 5 and 2 times p is at least 11.
- (2) Five added to the product of 2 and p is less than 11.
- (3) Two times p plus 5 is at most 11.
- (4) The product of 2 and p added to 5 is 11.



____3) Which is NOT a solution of the inequality $5 - 2x \geq -3$?

- (1) 0 (2) 2 (3) 4 (4) 5

____4) Which statement can be modeled by $x + 3 \leq 12$?

- (1) Sam has 3 bottles of water. Together, Sam and Dave have at most 12 bottles of water.
- (2) Jennie sold 3 cookbooks. To earn a prize, Jennie must sell at least 12 cookbooks.
- (3) Peter has 2 baseball hats. Peter and his brothers have fewer than 12 baseball hats.

- (4) Kathy swam 3 laps in the pool this week. She must swim more than 12 laps.
- 5) The sum of a number and 81 is greater than the product of -3 and that number. What are the possible values for the number?
- 6) Four times a number is greater than -48 . What are the possible values for the number?

Inequality Word Problems

Inequality Word Problems

Recall four steps to help solve these types of problems:

1. Read carefully and underline key words
2. Write a Let statement [e.g. let $x = \dots$]
3. Determined whether to use the $=$, $>$, $<$, \geq or \leq sign
4. Write and solve the inequality



1. The quotient of a number and 15 is no greater than 450. What are the possible values for the number?
2. Keith and Michelle went out to dinner. The total cost of the meal, including the tip, came to \$53.70. If the combined tip came out to \$9.60, and each friend spent an equal amount, how much did each friend pay not including the tip?
3. Jason is saving up to buy a digital camera that costs \$490. So far, he saved \$175. He would like to buy the camera 3 weeks from now. What is the equation used to represent how much he must save every week to have enough money to purchase the camera?



4. Adrian works in New York City and makes \$42 per hour. She works in an office and must get her suit dry cleaned everyday for \$75. If she wants to make more than \$260 a day, *at least* how many hours must she work?

5. Your brother has \$2,000 saved for a vacation. His airplane ticket is \$637. Write and solve an inequality to find out how much he can spend for everything else.

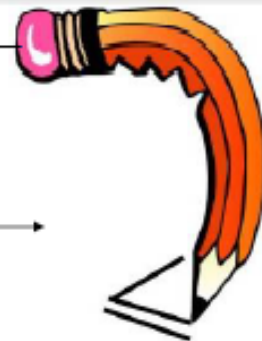


6. Your local bank offers free checking for accounts with a balance of at least \$500. Suppose you have a balance of \$516.46 and you write a check for \$31.96. How much do you need to deposit to avoid being charged a service fee?



Linear Inequalities

Name _____



Directions: Solve and graph the solution set. Indicate a scale.

1. $3x \leq 9$ 

2. $4x - 3 \geq 13$ 

3. $4x - 3 < 13$ 

4. $5x + 10 > 14x - 8$ 

5. $2x - 6 < 2$ 

6. $2x - 5 \leq x - 2$ 

7. $3x - 14 \geq 2 - 5x$ 

8. $-2x + 5 < 17 + x$ 

9. $-x \leq 15 - 2x$ 

10. $5x \geq -35$ 

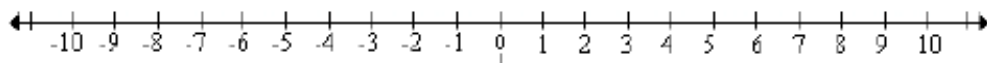
Inequalities

Name _____

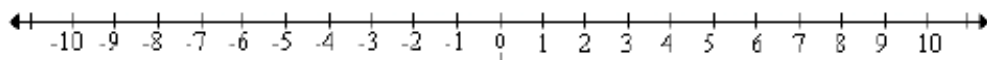


Solve the following inequalities and graph the solution sets on the number lines.
Please show work.

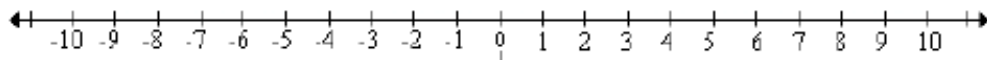
1. $x - 4 > 1$



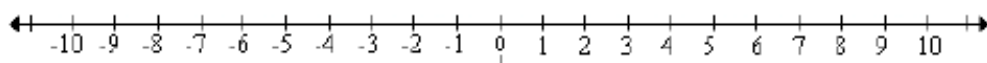
2. $x + 1 \leq 4$



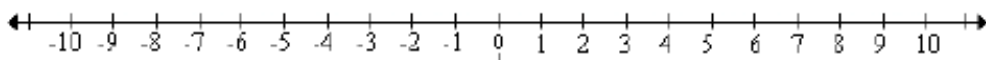
3. $4y \geq 8$



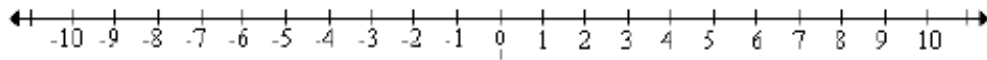
4. $-5w < 10$



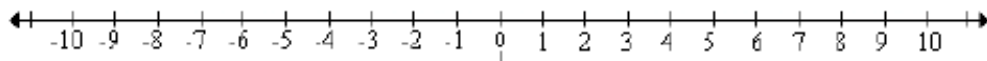
5. $4x > -28$



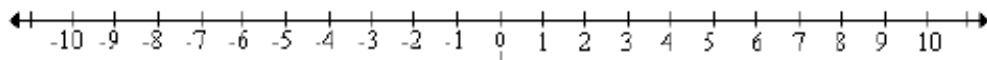
6. $27 > -9y$



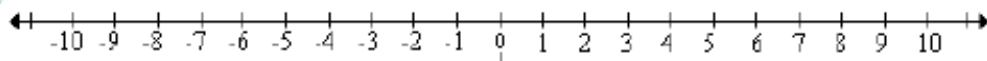
7. $2y + 7 < 17$



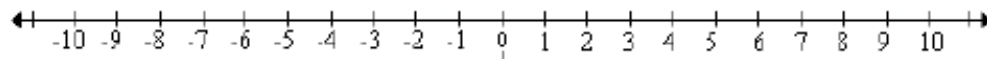
8. $2(2x - 8) - 8x \leq 0$



9. $5x + 4 \leq 11 - 2x$

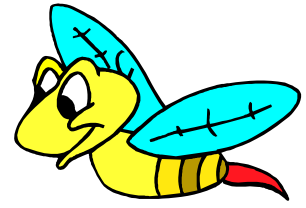


10. $5x - (x - 8) > 9 + 3(2x - 3)$





Inequality Test Review



Steps for solving equations:

- 1) Remove all parentheses by using the distributive property.
- 2) Combine like terms that occur on the same side of the equations.
- 3) Perform +/-
- 4) Perform \times / \div

Solving Inequalities is the same as solving an equation. You use the same steps as equations, but the only difference is if you multiply or divide by a negative number you must **FLIP** the inequality sign so the opening goes the other way.

Remember: When you graph the answer to the inequality, if the sign is $<$ or $>$ the circle is not shaded and if the sign is \leq or \geq the circle is shaded.

Review Sheet

1) $-9 + 2x < 3x$	2) $3x + 6 \geq 4x$	3) Write an inequality to represent: Ten is no more than four less than a number.
4) Graph the following: $x > 3$ or $x \leq -2$	5) Graph the following: $-2 < x \leq 1$	6) Translate the verbal expression into an algebraic inequality, solve an graph your answer: The sum of twice a number and 5 is at most 3 less than a number.