

# MasterMath

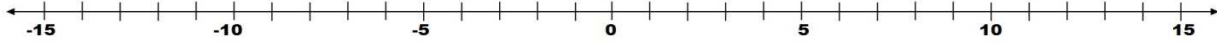
Algebra 1, Quarter 3 Exam

Name \_\_\_\_\_

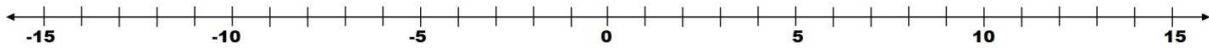
Date \_\_\_\_\_

**Closed Book; 60 minutes to complete  
CUCG; You may use a calculator.**

1. Solve and graph this inequality:  $3x > 9$

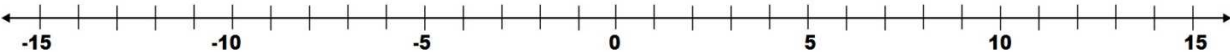


2. Solve and graph this inequality:  $(-2)(x + 3) \leq 14$

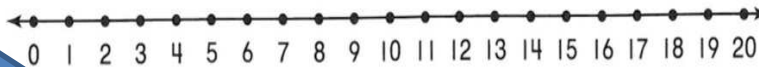
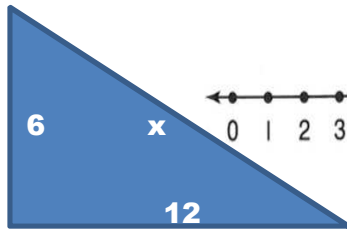


Translate into an Inequality, and then graph: All real numbers that are less than 8

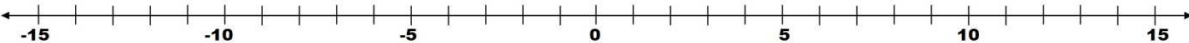
3. and greater than -12.



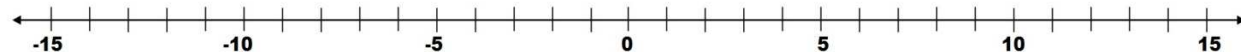
4. The sum of the lengths of any two sides of a triangle is greater than the length of the third side. The perimeter of this triangle is greater than 23. Write a Compound Inequality that describes  $x$ , and then graph:



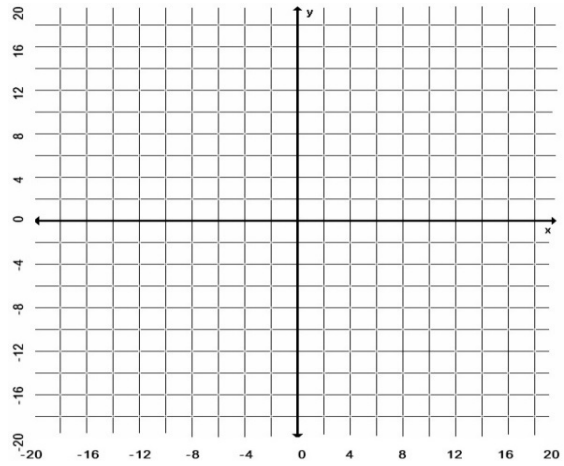
5. Solve and graph:  $2|x + 1| - 3 \geq 3$



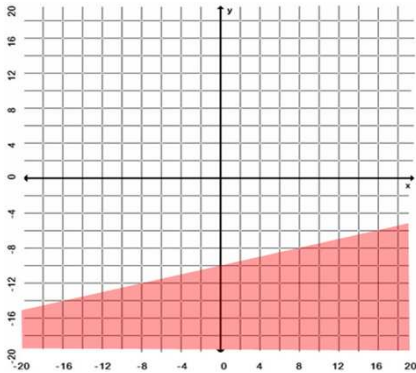
6. The average monthly temperature in a northern Canadian city is 1 degree Fahrenheit. The actual January temperature for that city ( $t$  = actual temperature) is never more than 5 degrees Fahrenheit warmer or colder. Solve  $|t - 1| \leq 5$  to find the range of temperatures. Graph the solution.



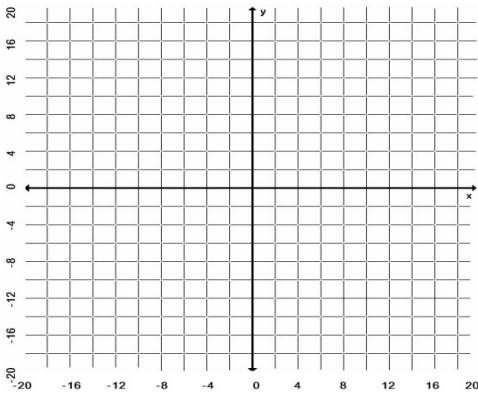
7. Graph this Inequality:  $2y - x \geq -12$



8. What Inequality is graphed here?



9. Write and graph 2 equations to determine the 2 numbers that satisfies this statement: the sum of two numbers is 8 and their difference is 4.



	Equation 1	Equation 2	Ordered Pair
Any form			
Slope-Intercept			

10. I have six coins in my pocket. They are all either pennies or nickels. The change in my pocket totals 18¢. How many pennies and how many nickels do I have?

Hint: let  $x$  = number of nickels and  $y$  = number of pennies.

	Equation 1	Equation 2	nickels
Any form			
Slope-Intercept form			pennies

11. Solve using substitution:  $2x - 8y = 4$  and  $-2x + y = 17$

12. Solve using Addition or Subtraction:  $2x - 2y = -16$  and  $x - 2y = -7$

13.



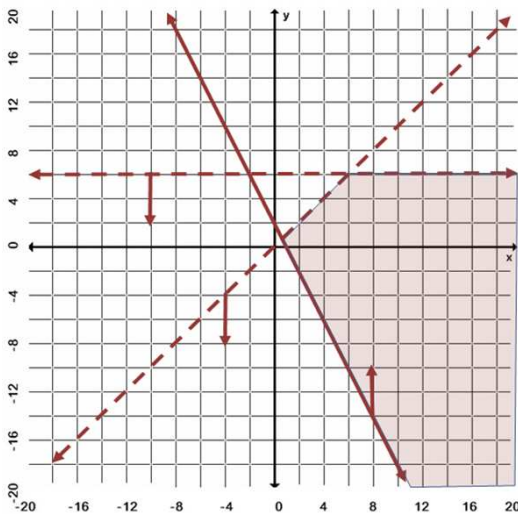
length of sitcoms	length of dramas

Write a system of equations to describe the situation below, solve using any method. A TV station executive is planning the new lineup for next season's shows. On Monday nights, there will be 6 sitcoms and 1 drama, for a total of 176 minutes of programming, not counting commercials. On Tuesday nights, she has scheduled 2 sitcoms and 2 dramas, for a total of 102 minutes of non-commercial programming. All sitcoms have the same length and all dramas have the same length. How long is each type of show?

14. Is (3, 1) a solution to this system of equations?

$$x + 2y = 4 \qquad 15x + 18y = 14$$

15. The shaded area shown here describes the solution set to what 3 linear inequalities?

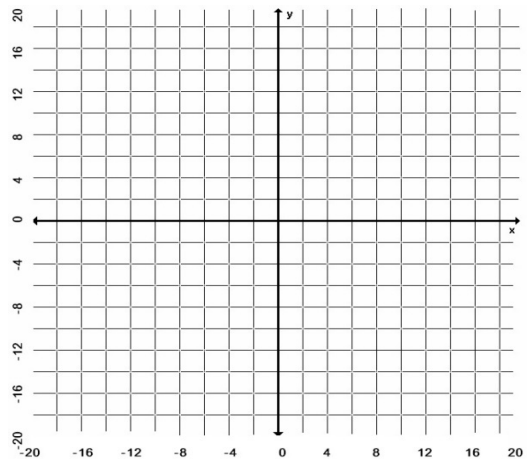


Inequality 1	Inequality 2	Inequality 3

16. Graph these Inequalities and shade in the solution:

$$y > 2x - 4$$

$$y \leq x + 2$$



17. Simplify these expressions

Expression	Simplified
$g^4 * g^3$	
$(a^2)^3$	
$a^2 * a^3$	
$x^3 * (x^4)^2$	
$(ab)^2 * a$	
$(x^3y^2)^2$	
$(2x)^2 * 2x$	

18. Simplify:

expression	simplified
$6^{-2}$	
$z^0$	
$(x^2y)^3$	
$x^3 * x^5$	
$(2y^3)^2$	
$(3x^3) \div (3x)$	

19. Simplify if necessary, and then rewrite each number to fill in the blank:

longhand	Scientific Notation
.0000000000042	
265,300,000,000,000	
$800 * 465,000,000$	

20. Simplify these expressions:

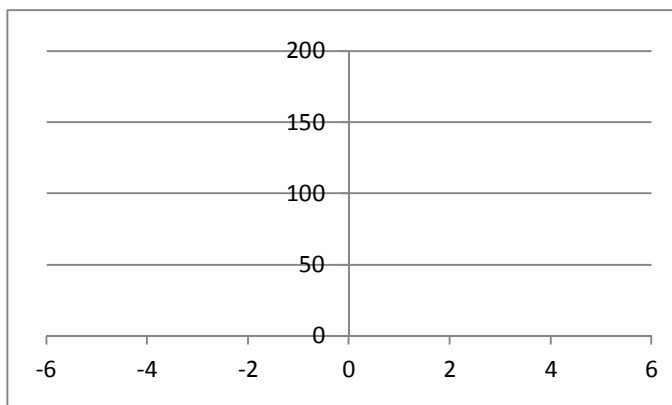
Expression	Simplified
$9^{-1/2}$	
$66 - 64^{1/3}$	

21. A mouse population is 25,000 and is decreasing in size at a rate of 20% per year.



Equation
Number of Mice

22. Graph  $y = 2 * \frac{1}{3}^x$



x	y

23.  $(3x^2 + 4 + 2x) - (x^2 + 3x - 4)$

24.  $3c(2a + 8)$

25.

Find the product of these binomials		
$(3x + 4)$	$(3x + 4)$	
$(3x + 4)$	$(3x - 4)$	
$(3x - 4)$	$(3x - 4)$	
$(z - 5)$	$(z - 5)$	
$(z - 6)$	$(z + 6)$	

26. Factor these polynomials completely:

Polynomial	Factor	Factor	Factor
$3x^5 + 3x^4 - 90x^3$			
$3z^5 - 48z^3$			
$12k - 3k^3$			
$80x^8 - 45x^6$			
$s^4 - s^2$			
$7a^3b^3 - 63ab^3$			
$75c^9 - 3c^7$			