Name:_____ Date:_____

Algebra 2 – Study Guide

- 1) Solve the following inequality or equation. Write a solution, and graph the solution set on a number line.
- a) 7 < 2x 1 < 19 b) |3x 3| = 12
- 2)Calc If a certain car gets 23 miles per gallon, and has a gas tank that can hold 15 gallons, how far can the car travel before it has to refill?
- 3) Find the domain and range of the set of following points $\{(0,3),(2,1),(5,4),(6,9)\}$
- 4) Calc Graph the following set of equations on the axis below. Make sure to pay attention to shading and boundary lines.

	_								11	0									
	[2					9	1							1		
v - r > -5	[10	1	11			8		20							1	
$y x \neq 0$				88-3					7		8-				8-1			3	
y < 2x + 2	[6										
$y \leq 2x + 2$	[80					5		8				30 - 3 0				
	[11			4			11							
	[_	3 -	2			8 - 18	3		8-				3-1		-		_
	[2										
				60 - 1 10					1		8				80 - 1 0				
					1.							hard				1.1			
	-10	4 4	8 -1	4-6	1	4	2	2	-1	1	2	3	4	5	þ	'	8	9	-10
									-2										
	1			60 - S					-3						2				
									4										
				35	8			8-18	-5		8-	-			3	-		3	-
									-6										
									-7										
									-8										
				35 -	8	1		8-18	-9		8-	-			3		-	- 3	-
	L								-10										

- 5) Find the equation in slope intercept form of the line that:
 - a. goes through the points (1,-2) and (3,4)

b. goes through (2,2) and is perpendicular to
$$y = \frac{1}{2}x$$

Algebra 2 Mr. Doherty Name:_____ Date:_____

6) Simplify the following expressions so there are no negative exponents and only one of each variable.

a.
$$\left(\frac{k^2 \cdot s^3}{k^{-4} \cdot s}\right)^3$$
 b. $k^3 k^{-2} k^4$

- 7) Simplify the following into standard form of a complex number. $\frac{3+i}{2-i}$
- 8) Solve the system of equations using any method: 4m + n = 65m + 3n = 4
- 9) Use the given matrices to perform the operations below. <u>Make sure to circle</u> your answer.

$A = \begin{bmatrix} 3 & 2 \\ 4 & 2 \end{bmatrix}$	$B = \begin{bmatrix} 1 & 2 & 4 \end{bmatrix}$	<i>C</i> =	$\begin{bmatrix} -3 & 2 \\ 0 & 4 \\ 1 & -2 \end{bmatrix}$
a) 3 <i>B</i>		b)	det[A]
c) $B+A$		d)	$B \cdot A$
e) $B \cdot C$			

- 10) Answer the following based on the function $f(x) = 2(x-1)^2 3$ a. Does the parabola open up or down? B. What is the vertex?
 - c. What is the axis of symmetry?

Algebra 2 Mr. Doherty

Name:_	
Date:	

- 11) Answer the following based on the function $h(x) = x^2 6x + 8$ a. Will the parabola open up or down? B. what is the vertex?
 - c. What is the axis of symmetry? D. What is the y-intercept?

E. What are the x-intercepts?

12) Find all of the zeros of the polynomial $f(x) = x^3 - 13x - 12$, given that (x - 4) is a factor of f(x).

13) Divide the following polynomials and write the solution below.

$$\frac{x^3 - x^2 + 7}{x^2 + 2x - 1} = \underline{\qquad}$$

- 14) Find the zeros of the function given below.
 - a) $x^3 + x^2 16x 16$
- 15) Simplify into standard form of a polynomial
 - a) $(x-2)(2x^2-3x-3)$ b) $7m(m^4+2m-6)$

Algebra 2		Name:
Mr. Doherty		Date:

16) Draw a graph that has a positive leading coefficient and an odd degree.



17) Find the zeros of the following polynomials. a. $y = x^2 + 4x + 13$ b. $y = (x+1)^2 - 4$

18) Graph the following function and state the domain and range. y = |x-2|+4

										0									
									9	9					3) 		1 0		
				10					8	3	10				ана 10				
	2-3			36-3	-			-	1	7	35 -				35				
										5									
				(C - 1															
				10-1					1		10-1				6 - C				
				38-1				3	:		3				8-1		-		3
									1	2									
									_1										
10	-9	-8	-7	-0	-5	-4	-3	-2	-1	t i	z	3	4	5	6	7	8	y	-10
									-2										
									-3		80 - 3 10								
				10-					4		10-1								
				30-3	1			5-1	-5	_	85 -				8-1				
									-6										
				80 - 3 10 - 1					-7		80 - 3 10								
				10 1			Τ		-8		6				0				
				38 - 3				8	-9		8-				8				
		Τ					Τ	Т	-11	0									٦

19) Make a scatter plot of 5 points that would have a negative correlation.

									1										
[T	9	5									
- [8										
				3					7		8				3				
									6										
-1									5		5								5
									4										
									3		3				3-1	_			
									2										
								_	1						-				
10	ł	-8	-7	-6	-5	4	3	-2	1	T	z	3	4	5	6	7	8	9	π
[-2										
									3										2
									4										
									-5		3								
									-6										
									-7										
									-8										
				3				3	-9		3-1				3 - 1				
- 1	- 1								10									i 1	- 1

Name:_____ Date:_____

20) Solve the equation 4(3x-1) = -3(2x+8) - 4

21) Find the x and y intercepts of the following equation. Use these to graph the line. 6x + 12y = 24

										9										
				10						8										
		_		85-3	2.3			8-1	- 1	7		85-1				85-1				3
								_		6										
										5		со — і 								
										4										
				35-3	2 3			35-3		3	_	35-1			_	35 -	3			3-1
									8	2										
				10			_			1	_				_				_	-
-10	Ą	-8	-1	-6	-5	4	3	-2	-1_1	Č.	T	z	3	4	5	6	7	8	y	-10
									1	2										
- 1				(G) 					-	3		(0) 								
									4	4										
				36-3	2 - 2			3	-	5		35-1				35-1				
									-	j.						_				
									-	7										
				10					-	3										
	8 - 2			8-1	-			8-1)		85-1				8-	1			3
									- 11	0										

22) Calc Using your calculator, what is the best fitting linear regression line for the following points:
(1, 7), (1, 6) (2,6) (3,5) (4,4) (5,5) (6,3) (7,2)

23) Write the product in standard form (3 + 2i)(1 - 5i)