🔆 🚨 Algebra 2 Summer Work 🍉 為

Directions: Complete each problem to the best of your ability and show all work. You may use a graphing calculator. Under each section, record the date that you complete it. You are welcome to email me with any questions. If some of this material is confusing or challenging for you — do not worry! We will review all of this in the first few weeks of class. This will count for your first guiz grade of the year (remember that guizzes are worth 5 points). This will be graded on both completion and accuracy. Due on the first full day of class, Wednesday September 3.

*There will be awkward blank spaces at some points in this packet — ignore those! The numbering of the questions may also seem strange on some pages. I took out some questions so the numbers skip around a bit.

I've also tried to put in some hints, so please use those. You are also welcome to responsibly use the internet for help.

	Date:	
Order of Ops	Simplify each expression.	
& Evaluating Expressions	1. $6^3 \div \{(12+5^2)-(-7 -15)^2\}$ 2. $\frac{3^3-6+\sqrt{-40+11^2}}{18-6^2\cdot 2}$	
Hint: PEMDAS		
	Evaluate the expressions below if $a = 8, b = -2$	
	3. $\left -a^2 - 2bc \right $ 4. $-\frac{7}{6}c + \frac{3}{4}ab$	
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	Date:	
Multi-Step Equations	Solve each equation. 1. $14a - (2a + 9) = \frac{2}{3}(12a - 18)$	
Hint: cross- multiplication	3. $\frac{3}{8} = \frac{6w - 7}{2w + 14}$	4. Solve $F = \frac{9}{5}C + 32$ for <i>C</i>
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	Date:
Word Problems	 The leg of an isosceles triangle is two less than three times the length of its base. If the perimeter of the triangle is 45 meters, find the length of the leg.
Hint: perimeter is all the sides added together. Draw it out!	
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	Date:		
Absolute	Solve each equation.	*Be sure to check for extraneou	is solutions. *
Value Equations	1. $ 4x+6 =26$	2. $\frac{ -8-5r }{6} = 2$	Hint: isolate the absolute value bars first.
Hint: the inside of the absolute value bars can be equal to either a positive 26 or a negative 26 so create two equations to represent this. Solve the two equations for x.			
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	Date:
Multi-Step Inequalities	Solve, graph, and write the solution in interval notation. 3(2x+16)
	1. $\frac{-8}{-8} \ge x - 1$
Hint: dividing or multiplying inequalities by a negative number will flip the sign.	
	2. $-\frac{5}{4}(24-6m) > 14-\frac{1}{2}(16-7m)$
	2

	Date:	
Compound Inequalities	Solve, graph, and write the solution in interval notation. 1. $2(2-3c) \le -2$ or $4c+5 < -3$	
	$\langle + + + + + + + + + + + + + + + \rangle$	
	2. $4-7a \le 67$ and $\frac{5a+2}{-9} > 2$	
	$\langle + + + + + + + + + + + + \rangle$	
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	Date:	
Linear	1. Graph the linear inequality.	<i>y</i>
Inequalities & Systems Hint: solve for y first then graph the inequality like	$4x - 5y \ge 10$	
it's an equation in y=mx+b form.	2. Graphing the system of linear inequalit $6x + 3y > 15$ y > -2	ities.
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	Date:	
Evaluating Functions	Given $f(x) = 8x - 9$, $g(x) = -x^2 + 7x$ and h(x) = 2 - 4x , find each value.	
Hint: plug 8 in for x in the g(x) equation.	1. $g(0)$ 2. $n(13) - j(-1)$	
	5. If $f(x) = -23$, find x .	
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	Date:
<i>x</i> - and <i>y</i> -	Find the x- and y-intercepts of each equation, then graph
Intercepts	1. $y = -6x + 2$
	2. $5x = 8y + 20$
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	Date:
Point-Slope & Two Points	Write a linear equation with the given information.
You may leave your answer in point- slope form or slope- intercept form.	2. Passes through (2, -6) and parallel to the line $2x - 3y = 15$.
	3. Passes through the points (-9, 7) and (3, -2).
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	Date:
Linear Equations Applications	Define variables, set up an equation, then solve. Caitlyn is going away to college and will need to rent a truck to help move. The cost of the truck is \$35 plus \$0.79 per mile. If her college is 85 miles away and she budgeted \$100 for the rental, will she have enough money?
	Date:
Equations of Lines	1. Write an equation of the line with the given slope and y-intercept: slope = $\frac{3}{5}$; y-intercept = -2
	 Write an equation of the line passing through the given point with the given slope.
	slope = -1; (-4, 10)
	 3. Write an equation of the line passing through the given two points. (-2, -9) and (4, -6)

	Date:
Solving Systems by Graphing & Substitution	1. Solve by graphing. 3x + 4y = -16 2x = y - 7
Hint: "solving" means to find the coordinate where the lines intersect.	
Hint: isolate one variable in one equation, then plug it into the other equation.	2. Solve by substitution. 2x + 7y = -23 5x - y = -39
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	Date:
Solving Systems: by Elimination	Solve each system by elimination. 1. $x-4y=-14$ 6x+8y=-12
Hint: Remember that for elimination, you need the coefficients of one of the variables to match up. Then you can add or subtract the equations together to "eliminate" that variable.	2. $6y = 2x + 4$ 7x + 14 = 21y

	Date:		
Systems Applications	Kate bought 5 pounds of hamburger and 2 pounds of hotdogs and paid \$28.50. Eric bought half the amount of hamburger and a fourth of the amount of hotdogs that Kate did and paid \$12.50. Find the cost per pound of hamburgers		
Hint: write one equation for Kate and one equation for Eric. Then use elimination or substitution to solve for h and b.	and hotdogs. Let b = cost per pound of hamburgers Let h = cost per pound of hotdogs		
	Date:		
Quadratic	Give the axis of symmetry and vertex of each function. Graph using a table of values.		
Hint: You can find the x-coordinate of a quadratic by using x=-b/(2a). Once you find the x-coordinate, plug that value back	1. $f(x) = x^2 + 6x + 8$		
into the function to find the y-coordinate of the vertex. Then make a table of values!	2. $f(x) = -2x^2 - 4x + 5$		

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	Date:
Quadratic	1. What are quadratic roots?
Roots	2. What else are quadratic roots referred to as?
	3. Find the roots by graphing: $f(x) = -x^2 + 2x + 8$
	$\begin{array}{c} y \\ \hline \\$
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	Date: Factor each polynomial completely:		
Factoring Review			
	1. $x^2 - 14x - 95$	2. $5x^2 - 40x + 80$	
Hint: Always try to find a GCF first.			
For a trinomial with no coefficient of x^2, look for two numbers that multiply to c and add to b.		4. 16 <i>x</i> ² – 49	
And don't forget about difference of squares method.		6. $24x^2 - 10x$	
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	Date:	
Solving	Solve each quadratic equation by square roots:	
Quadratics by Square Roots	1. $x^2 - 10 = 159$ 2. $36x^2 - 1 = 0$	
*Hint: The key with solving by square roots is to isolate the x squared term first.		
	3. $2x^2 + 7 = 41$	
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	Date:	
The Quadratic Formula	Solve by the quadratic formula: 1. $10x^2 - 9x = 2x + 6$	
*If you forgot the quadratic formula, feel free to Google it.		
	2. $-x^2 = 8x + 26$	