

Name _____

Date _____

Summer Math 2018
Completed Algebra II Honors

Every problem from *each* worksheet is to be completed with *all work shown* on a separate piece of paper. Answers should be written in the corresponding box. **These worksheets are due the first day of school in math class.** This will be the first homework/classwork grade for the new school year. The grade will be based on completion along with the work shown for the problems. Please make sure all work is neatly written on a separate page with each problem numbered correctly. The first week will be devoted to this review and a **quiz** will be given to assure mastery.

If students are unclear as to solving a problem, they are welcome to check www.coolmath.com as a resource or www.Khanacademy.org for short videos which will explain the process. There are many other web resources, but those are two that have proven to be excellent. Your child should work through the problems until the correct solution is found, being sure to show all of the correct work along with this solution.

Section 1**Function and Inequalities**

Problems:

Answers:

1.	Evaluate the expression. $4 + 7 - 8 \div 4$	
2.	Evaluate the expression. $8 - (4 + 3)^2 + 5$	
3.	Evaluate the expression. $X^3 - 5x$ when $x = 3$	
4.	Simplify the expression. $7x - y + 9x - 2y$	
5.	Simplify the expression. $2(x - 1) + 3(x + 2)$	
6.	Solve the equation. Check your solution. $5x + 17 = 2x - 10$	
7.	Solve the equation. Check your solution. $-5(2x - 1) = 3(x + 4)$	

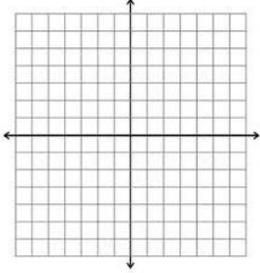
8.	Solve the equation for y. $3x + 4y = 12$	
9.	Solve the equation for y. $-6y + 7x = -9$	
10.	The school band is planning a carnival to raise money. They plan to sell 500 tickets. Adult tickets will be \$4.50 and student tickets will be \$2.50. They need to collect \$1650 in ticket sales to meet their goal. How many adult and student tickets do they need to sell?	
11.	Solve the inequality. $-m - 3 < 3m + 5$	
12.	Solve the inequality. $4 \leq x + 2 \leq 12$	
13.	Solve the inequality. $3x - 7 \leq 16$ or $2x - 1 > 23$	
14.	Solve the equation. $ 2x - 6 = 50$	
15.	Solve the inequality. $ 4 - 8x \geq 100$	

Section 2

Linear Equations and Functions

Problems:

Answers:

1.	Evaluate the function when $x = -2$. $f(x) = -x - 48$	
2.	Evaluate the function when $x = -2$. $f(x) = x + 3 - 9$	
3.	Tell whether the lines are parallel, perpendicular, or neither. Line 1: through $(3, 4)$ and $(1, 6)$ Line 2: through $(-1, 0)$ and $(3, 5)$	
4.	Draw the line with the slope and the y-intercept. $M = 2, b = -4$	
5.	Find the slope and y-intercept of the line. $Y = 2x - 5$	
6.	Find the slope and y-intercept of the line. $-2x + y = 10$	
7.	Write an equation of a line that has the given properties. Slope: 2, y-intercept: -4	
8.	Write an equation of a line that has the given properties. Passes through $(2, 6)$ and $(-7, 6)$	

Section 3

Systems of Linear Equations and Inequalities

Problems:

Answers:

1.	Solve the system using any algebraic method. $3x - 2y = 4$ $-2x + 2y = 3$	
2.	Solve the system using any algebraic method. $5x + y = 5$ $9x - 4y = -20$	
3.	Write the linear equation as a function of x and y. Then evaluate the function for the given values. $3x + 2y + 4z = 12$, $f(2, 3)$	
4.	Solve the system using any algebraic method. $3x + 2y = 12$ $2y - 5z = 1$ $x + y + z = 6$	
5.	You have \$20.75 to spend on picking 15 pounds of three different types of apples in an orchard. The Red Rome apples cost \$1.29 per pound, the Granny Smith apples cost \$1.49 per pound, and the Empire apples cost \$1.09 per pound. You want twice as many Granny Smith apples as the other two kinds combined. How many pounds of each type of apples should you buy?	

Section 4

Quadratic Functions

Problems:

Answers:

1.	Factor the trinomial. If the trinomial cannot be factored, say no. $x^2 + 8x + 15$	
2.	Factor the trinomial. If the trinomial cannot be factored, say no. $x^2 - 9x + 20$	
3.	Factor the trinomial. If the trinomial cannot be factored, say no. $3x^2 + 11x - 4$	
4.	Factor the trinomial. If the trinomial cannot be factored, say no. $16x^2 - 24x + 9$	
5.	Factor the trinomial. If the trinomial cannot be factored, say no. $4x^2 - 2x - 20$	
6.	Factor the trinomial. If the trinomial cannot be factored, say no. $3x^2 + 15x - 42$	
7.	Solve the equation. $x^2 + 10x + 21 = 0$	
8.	Solve the equation. $3x^2 - 24x - 27 = 0$	
9.	Solve the equation. $10x^2 - 3x = -2x^2 + 36$	

10.	Write the quadratic function in intercept form. $y = x^2 + 10x + 9$	
11.	Simplify the expression. $\sqrt{32}$	
12.	Simplify the expression. $\sqrt{243}$	
13.	Solve the equation. $-4(x + 2)^2 = -20$	
14.	Solve the equation. $\frac{1}{3}(x - 4)^2 = 3$	
15.	Write the expression as a complex number in standard form. $(-6 + 4i) + (2 - 7i)$	
16.	Write the expression as a complex number in standard form. $(9 - 2i)(9 + 2i)$	
17.	Solve the equation by completing the square. $x^2 - 4x + 8 = 0$	
18.	Use the quadratic formula to solve the equation. $x^2 + 10x + 25 = 0$	
19.	Use the quadratic formula to solve the equation. $7x^2 - 6x + 10 = 0$	
20.	Find the discriminant of the quadratic equation and give the number and type of solutions of the equation. $x^2 + 7x + 12 = 0$	

Section 5**Polynomials and Polynomial Functions**

Problems:

Answers:

1.	Evaluate the expression. $(2^3)^3$	
2.	Evaluate the expression. 6^{-2}	
3.	Evaluate the expression. $8^0 \cdot 8^{-3}$	
4.	Simplify the expression. $(32x^2)^4$	
5.	Simplify the expression. $\frac{x^8}{x^5}$	
6.	Simplify the expression. $\frac{4x^4y^7}{8x^5y^3}$	
7.	Use synthetic division to evaluate the polynomial function for the given value. $f(x) = 10x^3 - 5x^2 + 4$; $x = -1$	
8.	Find the sum or difference. $(2x^2 + 6x + 3) + (3x^2 + 4x + 4)$	
9.	Find the sum or difference. $(6x^3 - 7x^4 + 10x) - (4x^3 - 6x^2)$	
10.	Find the product of the polynomial. $(x - 3)^2$	

11.	Find the product of the polynomial. $(5 - 3x)(x + 1)(x + 6)$	
12.	Find the product of the polynomial. $(x + 12)(2x^2 - 3x + 5)$	
13.	Factor the polynomial $x^3 - 27$	
14.	Factor the polynomial. $2x^3 + 250$	
15.	Factor the polynomial. $x^3 - 5x^2 - 4x + 20$	
16.	Factor the polynomial. $3x^5 + 6x^3 - 45x$	

Section 6

Rational and Radical Functions

Problems:

Answers:

1.	Evaluate the expression. $\sqrt[3]{27}$	
2.	Evaluate the expression. $16^{-1/2}$	
3.	Evaluate the expression. $(\sqrt[4]{81})^{-2}$	
4.	Simplify the expression. $5^{1/4} \cdot 5^{-3/4}$	
5.	Simplify the expression. $(3^{1/3})^{2/5}$	
6.	Simplify the expression. $\frac{12^{3/5}}{12^{1/5}}$	
7.	The number of tiles n needed to cover a floor varies directly as the area of the floor, and $n = 180$ when $a = 20$ sq ft. Find n when $a = 34$ sq ft.	
8.	Simplify. $\frac{4x-8}{x^2-2x}$	
9.	Divide. $\frac{x^2-9}{x+2} \div \frac{x+3}{x^2+7x+10}$	
10.	Add. $\frac{6x-3}{x^2-x-12} + \frac{x}{x+3}$	
11.	Solve the equation for x . $x - \frac{6}{x} = 1$	

Section 7**Exponential and Logarithmic Functions**

Problems:

Answers:

1.	Tell whether the function shows growth or decay. $f(x) = 0.5 (1.25)^x$	
2.	Write the exponential equation $9^{1.5} = 27$	
3.	Evaluate $\log_7 49$	
4.	Express as a single logarithm and simplify. $\log 25 + \log 40$	