

Name _____

Date _____

Summer Work 2017

Completed Algebra III

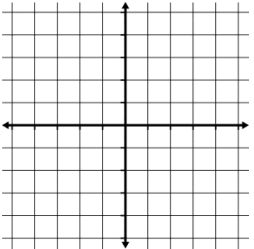
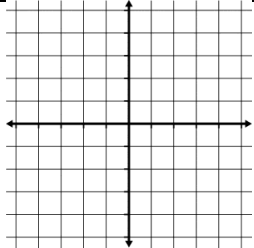
Instructions: Please complete the following problems showing all work. If you use scratch paper to work the problems out, please number the problems on the paper so that the work can be easily associated with a problem. **This packet is due on the first day of school and will count as your first daily grade of the semester.** This will be a completion grade. Full credit will not be given if work is not shown where applicable. Once your Summer Work is graded for completion, you will have the opportunity to review the packet with your teacher. Your first **quiz** of the semester will cover the topics in this packet.

If you are unclear as to solving a problem, then you 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. You 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 Algebra and Problem Solving

1. Perform the indicated operation. Simplify. $7 + (1 - 3)^2 - 9 \div 2^2 \cdot 6$	
2. Evaluate: $a^3 - 5b + b \div ac$ for $a = -2$ $b = 6$ $c = 3$	
3. Solve for P_2 : $\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$	
4. Linda's scores on five test are 84, 80, 76, 96 and 80. What must Linda score on the sixth test so that her average will be 85?	
5. Simplify. Do not use negative exponents in the answer. $(-6x^2y^{-4})^{-2}$	
6. Simplify and write scientific notation for the answer. $\frac{5.6 \times 10^7}{2.8 \times 10^{-3}}$	

Section 2 Graphs, Functions, and Linear Equation



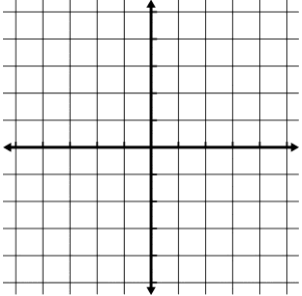
<p>1. Determine whether the ordered pair is a solution of the given equation.</p> $(12, -3) \quad x + 4y = -20$	
<p>2. Graph. $y = -3x + 4$</p>	
<p>3. Find the slope of the line containing the following two points.</p> $(-2, -2), (6, 3)$	
<p>4. Determine without graphing if the lines are parallel, perpendicular or neither.</p> $y = -2x + 5$ $2y = x + 10$	
<p>5. Graph using the intercepts.</p> $-2x + 4y = 8$	
<p>6. Write an equation in slope-intercept form for the line containing the point $(-3, 4)$ and a slope of -2.</p>	

Section 3**Systems of Linear Equations and Problem Solving**

1. Solve using substitution method. $\begin{cases} y = 2x - 7 \\ 4x - 3 = y \end{cases}$	
2. Solve using the elimination method. $\begin{cases} 4x + 2y = -12 \\ 2x + 6y = 4 \end{cases}$	
3. The perimeter of a standard tennis court used for doubles is 228 feet. The width is 42 feet less than the length. Find the dimensions (length and width).	
4. Solve the system. $\begin{cases} 2x + y - 3z = -4 \\ 4x - 2y + z = 9 \\ 3x + 5y - 2z = 5 \end{cases}$	
5. Paint Town sold 45 paint brushes, one kind for \$8.50 each and another for \$9.75 each. In all, \$398.75 was taken in for the brushes. How many of each kind was sold?	

Section 4

Inequalities and Problem Solving

<p>1. Find the intersection or union. $\{1,2,5,6,9\} \cup \{1,3,5,9\}$</p>	
<p>2. Solve the inequality. Graph. $-4y - 3 \geq 5$</p>	
<p>3. Solve the inequality. Graph. Write the solution in interval notation. $-12 < x - 5 < -1$</p>	
<p>4. Graph the system of inequalities. $\begin{cases} y \leq -2 \\ x \geq 1 \end{cases}$</p>	
<p>5. There were 200 tickets sold for a women's basketball game. The tickets for students were \$4 and for adults were \$6 each. The total amount collected was \$1060. How many of each type of ticket were sold?</p>	

Section 5**Polynomials and Polynomial Functions**

1. Add the polynomials. $(a^2 - 3b^2 + 4c^2) + (-5a^2 + 2b^2 - c^2)$	
2. Subtract the polynomials. $(7y - 5) - (-3y + 4)$	
3. Multiply. $(p + 2)(p^4 - 2p^3 + 3)$	
4. Solve for the variable's values. $3x^2 - 8x + 4 = 0$	
5. Write an equivalent expression by factoring by grouping. $2y^4 + 6y^2 + 3y^2 + 9$	
6. Write an equivalent expression by factoring. $c^2 - 3c - 40$	

Section 6

Rational Expressions, Equations, and Functions

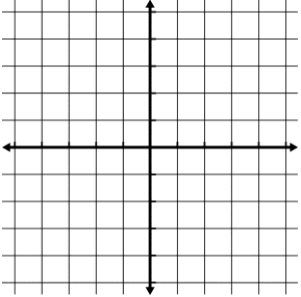
1. Simplify. $\frac{2x+20}{x^2+10x}$	
2. Simplify. $\frac{x^2-4x-12}{x^2-11x+30}$	
3. Multiply and Simplify. $\frac{y^2+12y+36}{y^2-16} \cdot \frac{y^2+4y}{y+6}$	
4. Divide and Simplify. $\frac{x^2+2x-80}{x+5} \div \frac{x^2-13x+40}{x+5}$	
5. Add. Remember to find a common denominator. $\frac{3}{y+2} - \frac{y}{y-6} + \frac{y^2+1}{y^2-4y-12}$	
6. Solve for the variable. $\frac{4}{5x+3} = \frac{2}{2x+4}$	
7. A swimming pool can be filled in 18 hours if water comes from the county water line alone and 22 hours by the well alone. How long will it take to fill the pool from both sources?	

Section 7**Exponents and Radicals**

1. Simplify. $\sqrt[3]{8a^3}$	
2. Simplify. $\sqrt{x^2 - 4x + 4}$	
3. Rewrite using radical symbols. $(4ab)^{5/6}$	
4. Simplify. $\sqrt[5]{32x^{10}}$	
5. Subtract. $4\sqrt{8} - 3\sqrt{2}$	
6. Multiply. $(2 + \sqrt{5})(3 - \sqrt{5})$	

Section 8

Quadratic Functions and Equations

<p>1. Solve using the quadratic equation. $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$</p> $2x + 5 = x^2$	
<p>2. Solve by completing the square.</p> $x^2 + 4x - 21 = 0$	
<p>3. Graph: $f(x) = (x - 3)^2 + 1$</p> <p>Label the vertex.</p> <p>Draw the axis Symmetry</p>	
<p>4. Write a quadratic equation having solutions -2 and 1.</p>	
<p>5. Graph: $f(x) = 2x^2 + 4x - 6$</p> <p>Find the vertex and axis of symmetry.</p>	