**Algebra 1 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Regents Review #15 Period \_\_\_\_\_\_\_**

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| 1. Mr. Widman started an investment fund on his 26th birthday. The initial investment was $5,000 which would earn an interest rate of 4.5% compounded annually. No deposits or withdrawals were made over the course of the investment. A. Write an equation that shows the relationship between B. Use your equation to find the value of the investment whenthe amount of money in the account$a$ and the time in Mr. Widman turns 62 years old. Show how you arrived at years$t$ that the money was invested. your answer. Round to the nearest penny.Equation \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 2. Factor completelyA. $4x^{2}-100$B. $x^{2}+3x-54$C. $12x^{2}-32x-35$ | 3. Let $f\left(x\right)=x-4$ and $g\left(x\right)=3x^{2}-4x+3$ Express $f(x)∙g(x)$ in standard form.B. Express $(x-7)^{2}$ in standard form |

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| 4. Express in standard form. Subtract $2x^{2}-7x+5$ from $-3x^{2}+x-4$ | 5. Factor completely $18x^{3}-12x^{2}-30x$ |
| 6. Solve the system of equations.$$3x+2y=17$$$$5x+7y=21$$ | 7. Write an ***equation*** that defines $f(x)$ as a trinomial in standard form where… $$f\left(x\right)=\left(8-2x\right)\left(x+4\right)-(x^{2}-5x-3)$$Evaluate $f(-2)$ |

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| 8. Graph the system of inequalities on the coordinate plane provided. $5x-2y\leq 8$ $y<3-x$B. Name and plot one point that that falls in the solution set to the system of inequalities \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_C. Name and plot one point that that falls in the solution set to ***one of*** the inequalities \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_D. Name and plot one point that that falls in the solution set to ***neither of*** the inequalities \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 9. The initial purchase price of a new car was $19,700. The car will depreciate in value at a rate of $16\frac{1}{2}\%$ per year.A. Will the relationship between the value of the car and the time in years show exponential growth or decay? Explain your reasoning.B. Write an equation that shows the value of the car, ***y***, in dollars and the time in years, ***x***, since the initial purchase. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_C. Use your equation to determine the value of the car after 6 years. Round your answer to the nearest penny. Show your work.D. After how many years will the value of the car be less than $4,000? Justify your answer. |

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| 10. The local youth club needs a balance of at least $5,600 in their account to take a trip to Washington D.C. They currently have a balance of $3,000 in their account. To raise the money needed to take the trip, the group is selling tubs of cookie dough and boxes of cookies. For each tub of cookie dough sold, ***d***, they earn a profit of $6.50, and for each box of cookies sold, ***c***, they earn a profit of $1.75. Write an algebraic inequality to model the problem above.The youth group projects they will sell 300 buckets of cookie dough. Using your inequality, determine the minimum number of boxes of cookies they would need to reach their goal of $5,600. |