Name: __Kuy__
Date: ____
Period: ____

Unit 1 Review – Test is Friday, August 21st

What you need to know & be able to do	Things to remember	Examples	
1. Algebraic expressions	• Identify Parts of an expression Variable Constant Term coefficient	1. Identify the: **Variables:** x, y **Constants:** -9 $32x^2 - 8x + 4y - 9$	2. Identify the: **Terms:** $24x^2, 5x, -7$ **Coefficients:** $24, 5$ $24x^2 + 5x - 7$
2. Creating Algebraic Expressions	• Remember to look for key words	3. Create an expression for "four less than three times a number" $3n - 4$	4. Write 2 verbal descriptions of $\frac{n}{5}$ • Quotient of n and 5 • n divided by 5
3. Simplify algebraic expressions	• Use key words to create algebraic expression from word problems. • Simplify algebraic expressions	5. Simplify $15x + 5(2x - 4) - 11$ $15x + 10x - 20 - 11$ $\boxed{25x - 31}$	6. Simplify $5x^2 - 3x + 4 - 3 + 8x$ $\boxed{5x^2 + 5x + 1}$
4. Solving One Step Equations	• Use Inverse operations	7. Solve $5 + m = 2$ $-5 \quad -5$ $\boxed{m = -3}$	8. Solve $-7 \cdot \dfrac{x}{-7} = 3 \cdot -7$ $\boxed{x = -21}$
5. Solving Two Step Equations	• Use Inverse operations	9. Solve $\dfrac{x}{6} + 4 = 15$ $\quad -4 \quad -4$ $6 \cdot \dfrac{x}{6} = 11 \cdot 6$ $\boxed{x = 66}$	10. Solve $3 \cdot \dfrac{x-4}{3} = -6 \cdot 3$ $x - 4 = -18$ $+4 \quad +4$ $\boxed{x = -14}$
6. Solving Multi-Step Equations	• Use Inverse operations	11. Solve $-5(3 + x) + 25 = 15$ $-15 - 5x + 25 = 15$ $10 - 5x = 15$ $-10 \quad -10$ $\dfrac{-5x}{-5} = \dfrac{5}{-5}$ $\boxed{x = -1}$	12. Solve $3x - 6 = 12 - 3x$ $+3x \qquad +3x$ $6x - 6 = 12$ $+6 \quad +6$ $\dfrac{6x}{6} = \dfrac{18}{6}$ $\boxed{x = 3}$

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7. Isolating a Variable	• Using the properties of equalities solve an equation with more than one variable for a chosen variable.	13. Solve the equation for d $$f \cdot a = \dfrac{cd}{f} \cdot f$$ $$\dfrac{fa}{c} = \dfrac{cd}{c}$$ $$\boxed{\dfrac{fa}{c} = d}$$	14. Solve for y: $\quad 8x - 4y = 16$ $$\underline{-8x \qquad -8x}$$ $$\dfrac{-4y}{-4} = \dfrac{-8x + 16}{-4 \quad -4}$$ $$\boxed{y = 2x - 4}$$
8. Solve Linear Inequalities.	• Solve an inequality by isolating the variable. Hint: Dividing by a negative number flips the inequality.	15. Solve $$3(x+2) < -3$$ $$3x + 6 < -3$$ $$\underline{-6 \quad -6}$$ $$\dfrac{3x}{3} < \dfrac{-9}{3}$$ $$\boxed{x < -3}$$	16. Solve and name 3 solutions $$7 - 2t \le 21$$ $$\underline{-7 \qquad -7}$$ $$\dfrac{-2t}{-2} \le \dfrac{14}{-2}$$ $$\boxed{t \ge -7}$$ Solutions: $-3, 0, 1$
9. Creating Expressions	• Define the variable for the quantity that is always changing	17. Lucy gets paid $150 a week and $10 for every computer she sells. Write an expression that represents her weekly income. $$\boxed{150 + 10c}$$ c: computer	18. Andy wants to mail a package. It costs $4.99 plus $0.30 for every ounce the package weighs. Write an expressions that represents the total cost of shipping the package. $$\boxed{4.99 + .3z}$$ z: ounces
10. Creating Equations and Inequalities	• Define a variable for what you are solving for • Look for key words • Consecutive Integers: x, x + 1, x + 2, ... • Consecutive Even/Odd Integers: x, x + 2, x + 4, ...	19. Alex belongs to a music club. In this club, students can buy a student discount card for $19.95. This card allows them to buy CDs for $3.95 each. After one year, Alex has spent $63.40. How many cds did Alex buy? C: cd $$19.95 + 3.95c = 63.40$$ $$\underline{-19.95 \qquad -19.95}$$ $$\dfrac{3.95c}{3.95} = \dfrac{43.45}{3.95}$$ $$\boxed{C = 11 \text{ cds}}$$	20. Cecilia has $30 dollars to spend at a carnival. Admission costs $5 and each ride ticket costs $1.50. What is the maximum amount of tickets she can purchase? t: ticket $$\underline{5 + 1.50t \le 30}$$ $$-5 \qquad\qquad -5$$ $$\dfrac{1.50t}{1.50} \le \dfrac{25}{1.50}$$ $$t \le 16.67$$ $$\boxed{\text{max of 16 tickets}}$$
		21. Three consecutive integers add up to 153. Find the three integers. $$X + X + 1 + X + 2 = 153$$ $$3x + 3 = 153$$ $$\underline{-3 \quad -3}$$ $$3x = 150$$ $$x = 50$$ $$\boxed{50, 51, 52}$$	22. Three ODD integers add up to 381. Find the integers. $$X + X + 2 + X + 4 = 381$$ $$3x + 6 = 381$$ $$\underline{-6 \qquad -6}$$ $$\dfrac{3x}{3} = \dfrac{375}{3}$$ $$x = 125$$ $$\boxed{125, 127, 129}$$

Creating Compound Inequalities	• Look for key words that indicate if values are included	23. An iguana needs an environment between 70 degrees and 95 degrees. Write a compound inequality. $t:$ temperature $70 < t < 95$	24. Water is not a liquid when it is less than 0 degrees Celsius or above 100 degrees Celsius. Write a compound inequality. $t:$ temperature $t < 0$ or $t > 100$
12. Dimensional Analysis	• KHDUDCM	25. Convert 12 pints to gallons. pints → quarts → gallons $\dfrac{12\ pints}{1} \cdot \dfrac{1\ quart}{2\ pints} \cdot \dfrac{1\ gallon}{4\ quarts} =$ $\dfrac{12\ gal}{8} = \boxed{1.5\ gallons}$	26. Convert 5 miles to feet. $5\ miles \cdot \dfrac{5,280\ ft}{1\ mile} =$ $\boxed{26,400\ ft}$
		27. Convert 1500 cg to hg. KHDUDCM $4 \leftarrow$ $\boxed{.1500\ hg}$	28. Convert 10 km to mm. KHDUDCM $\rightarrow 6$ 10,000,000 $\boxed{10,000,000\ mm}$
13. Dimensional Analysis Applications	• KHDUDCM • Create a plan	29. Sarah ran a 10 meter race. How many feet is that? (1 in = 2.54 cm) $m \rightarrow cm \rightarrow in \rightarrow ft$ 10 m = 1000 cm $\dfrac{1000\ cm}{1} \cdot \dfrac{1\ in}{2.54\ cm} \cdot \dfrac{1\ ft}{12\ in} =$ $\dfrac{1000\ ft}{30.48} = \boxed{32.8\ ft}$	30. A bowl of cereal weighs 60 oz. How heavy is it in kg? (1 oz = 28.3 g) oz → gram → kilogram $\dfrac{60\ oz}{1} \cdot \dfrac{28.3g}{1\ oz} = 1698\ g$ $1698 g = \boxed{1.698\ kg}$