Name: Key

Unit 1 Test Review

Algebra II

Directions: Show all work for each problem.

Variable/Terms/Expressions:

1.) Simplify the following completely. $3x^2 + 2x - 4x^2 + 7 - 3x + 4$

$(3x^2 - 4x^2) + (2x - 3x) + (7 + 4)$ Combine like terms

$\Rightarrow \boxed{-x^2 - x + 11}$

2.) Simplify the following completely. $7(3x - 2) + 4(2x + 6)$ Distribute

$21x - 14 + 8x + 24$ Combine Like Terms

$\boxed{29x + 10}$

Solving Linear Equations: For each of the following problems. Find the solution for x = or state that there is no solution or infinite solutions.

3.) $3x - 7 = 17$

$+7 \quad +7$

$\frac{3x}{3} = \frac{24}{3}$

$\boxed{x = 8}$

4.) $3(x - 2) + 5(x - 6) = 3x - 11$

$3x - 6 + 5x - 30 = 3x - 11$

$8x - 36 = 3x - 11$

$-3x \quad -3x$

$5x - 36 = -11$

$5x - 36 = -11$

$+36 \quad +36$

$\frac{5x}{5} = \frac{25}{5}$

$\boxed{x = 5}$

5.) $5(3x + 2) - 3(2x + 6) = 3(3x + 2)$

$15x + 10 - 6x - 18 = 9x + 6$

$9x - 8 = 9x + 6$

$-9x \quad -9x$

$-8 \neq 6$

Not true $\therefore$ $\boxed{\text{no solution}}$

6.) $2(3x + 4) - 2(x + 1) = 2(2x + 3)$

$6x + 8 - 2x - 2 = 4x + 6$

$4x + 6 = 4x + 6$

identity $\therefore$ $\boxed{\text{infinite solutions}}$

7.) I am thinking of a number such that two times the sum of the number and 6 is 5 less than three times the number. Find the number I am thinking of.

$2(x + 6) = 3x - 5$

$2x + 12 = 3x - 5$

$-2x \quad -2x$

$12 = x - 5$

$+5 \quad +5$

$\boxed{17 = x}$

Name: Unit 1 Test Review Algebra II

Creating Linear Equations

8.) Six less than four times a number is thirty-two. Write an equation to represent this statement.

$4x-6=32$

9.) Eleven more than two times a number is three times the sum of the number and two. Find the number.

$2x+11=3(x+2)$

$2x+11=3x+6$

$-2x \quad -2x$

$11=x+6$

$-6 \quad -6$

$x=5$

Creating Linear Inequalities.

10.) Solve the following inequality. $3x-14 \leq 5x+12$

$+14 \quad +14$

$3x \leq 5x+26$ $\quad x \geq -13$

$-5x \quad -5x$

$\frac{-2x}{-2} \leq \frac{26}{-2}$ Flip the sign when dividing by a negative

11.) Write out an inequality to represent the following statement. The sum of three times a number and 4 is greater than twice a number decreased by 8.

$3x+4 > 2x-8$

Literal Equations: Solve each of the following for the indicated variable.

12.) Solve for x if $2x+c=r$

$-c \quad -c$

$\frac{2x}{2}=\frac{r-c}{2}$ $\quad \therefore x=\frac{r-c}{2}$

13.) Solve for A if $Y=\frac{A}{S}$

$S \cdot Y=\frac{A}{S} \cdot S$

$\therefore A=SY$

14.) Solve for F if $3F-2G=5H$

$+2G \quad +2G$

$\frac{3F}{3}=\frac{5H+2G}{3}$

$F=\frac{5H+2G}{3}$

15.) The formula to find the area of rhombus is $A=\frac{1}{2}pq$. Solve this equation for the variable p.

$2 \cdot A=\frac{1}{2}pq \cdot 2$

$\frac{2A}{q}=\frac{pq}{q}$ $\quad p=\frac{2A}{q}$