Name:_____ Math 412- Ms. Castellano Date:

Quarter 1 Mixed Review

Show all necessary work.

- 1. Robert just got his first job and is saving 45 dollars a week. He also has 155 dollars saved from his birthday that just passed.
 - a. Write an expression and determine how much money Robert will have saved in 6 weeks.
 - b. After his first month, he had more than he expected to have due to interest the bank provided. This let Rob come up with a better expression, $\frac{w^2}{25} + 45w + 155$, where *w* is the number of weeks. How much will he have in 1 year?

2. Evaluate $2(4x + 4y)^2$ when x = -2 and y = 3.

- 3. Vincent pays \$306 in advance on his account at the athletic club. Each time he uses the club,\$7 is deducted from the account. Which equation represents the value remaining in the account after *x* visits the club, and which is the amount remaining in the account after 17 visits?
 - (1) V = 306 7x; \$187
 - (2) V = 306 7x; \$180
 - (3) V = (306 7)x; \$194
 - (4) V = 7 306x; \$187

4. Solve and graph the following inequality: $5x + 2 \ge 3(x - 1)$

5. Solve for F:
$$C = \frac{5}{9}(F - 32)$$
 6. Solve for *x*: $3x - xy = 7$

7. Solve and graph the compound inequality: $-15 \le 3x - 9 < 15$

8. Find the product of $(3 - y^2)(4y - y^2 + y^3)$

9. The members of a club agreed to buy at least 250 tickets for a theater party. If they expect to buy 80 fewer orchestra tickets than balcony tickets, what is the least number of balcony tickets they will buy? *Only an algebraic solution will be accepted*.

10. A rectangular landing strip for an airplane has a perimeter of 8000 feet. If the length is 32 feet shorter than 35 times the width, find the dimensions (length and width).

11. Solve for x: -3(4x + 3) + 4(6x + 1) = 43

- 12. The length of a rectangle is two less than three times a number x and the width is five more than that same number.
 - a. Draw a diagram that represents the rectangle. Be sure to label the sides in terms of x.
 - b. Use your diagram to find what the perimeter of the rectangle is in terms of x. Write your answer as a simplified binomial.

13. In my wallet, I have one-dollar bills, five-dollar bills, and ten-dollar bills. The total amount in my wallet is \$43. I have four times as many one-dollar bills as ten-dollar bills. All together, there are 13 bills in my wallet. How many of each bill do I have?

14. Paul has twice as many dimes as pennies and 3 times as many nickels as pennies. In all, he has \$1.80. How many coins of each type does he have?

15. If the temperature in Buffalo is 23°F, what is the temperature in degrees Celsius, *C*, if the formula is $C = \frac{5}{9}(F - 32)$?

 $\begin{array}{rrrr} (1) & -5^{\circ} \\ (2) & 5^{\circ} \\ (3) & 45^{\circ} \\ (4) & -45^{\circ} \end{array}$

16. One high-speed Internet provider has a \$50 setup fee and costs \$30 per month. Another provider has no setup fee and costs \$40 per month.

a. In how many months will both providers cost the same? What will that cost be?

b. If you plan to cancel in 1 year, which is the cheaper provider? Explain.

17. Find $4x^2 - 8 + x$ less than the sum of $3x + x^2 - 7$ and $-6x^2 + 3x - 2$.

18. Use the information provided for each player to complete the missing portions of the table. Support your answers with mathematical calculations.

Results from Basketball Game

	Baskets Made	Baskets Attempted	Shooting Percentage
Kyra	12	16	%
Mark		15	60%
Shaina	14		35%