Mth 096 – Beginning Algebra – **Practice Exam 2**

NOTE: This exam should not be taken as a complete list of possible problems. It is merely intended to be an example of the difficulty level of the regular exam. To best utilize it as a *practice* exam, try to complete the exam without notes or distractions. Try to emulate the classroom environment as much as possible.

1. Simplify each expression as completely as possible.

   a. $3(x-1)+2(x+3)$

   b. $7-2(x-5)$

   c. $3x^2-7x+4-8x^2-3-x$

2. How many terms are in the expression $3x^2y^3+5xy^2-3y$?

3. In the algebraic expression $3b-a+2ab^2-7ab$, what is coefficient of a?

4. Determine whether $x=-6$ satisfies the given equation.

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

Solve the following equations.

5. $2x - 3 = 5$

6. $3z = 4z - 6$

7. $4 + 3(3y - 5) = 2y - 11 + y$

8. $4t - 2(t - 3) = 12$

9. $3 + 2(y - 2) = 4y - 2(y - 1)$

In each of the following problems, **write an equation that would solve for the unknown**. You **do not need to solve it**. Be sure to **clearly label what the variable represents**.

10. A restaurant bill came to $91.80, including an 8% sales tax. What was the bill for food without tax?

11. Oberweis Dairy has 400 quarts of whole milk containing 5% butterfat. How many quarts of low-fat milk containing 1.5% butterfat should be added to produce milk containing 2% butterfat?

12. Two hikers are 11 miles apart and walking toward each other. They meet in 2 hours. Find the rate of each hiker if one hiker walks 1.1 mph faster than the other.

Solve each of the problems algebraically. That is, **set up an equation and solve it**. Be sure to **clearly label what the variable represents**.

13. One number is eight more than twice another. If the sum of the two numbers is 38, find the numbers.

14. A piece of rope 130 cm long is cut into three pieces. The longest piece is 6 cm less than 3 times as long as the shortest piece, and the middle-sized piece is 26 cm longer than the shortest piece. Find the lengths of the three pieces.

15. A computer rental company has an installation charge of $125 plus a daily rental charge. If a 5-day rental costs $275, what is the daily rental charge?

Solve the following inequalities. Graph each solution set on a number line and write the solution set in interval notation.

16. $a - 5 > -2$

17. $2(a - 5) + 3a > 6a - 6$

18. $2 < 3a + 2 \leq 8$