Honors Precalculus Name:_____ Per: _____

Chapter 7 PRACTICE TEST *Use an additional sheet, if necessary, to show your work*

1. Solve by substitution or elimination.

$$2x - 3y = -13$$
$$y = 2x + 7$$

2. Solve by substitution or elimination.

$$4x + 3y = 0$$
$$2x - y = 0$$

3. If you are solving a system and the following happens, what do you conclude?

a) You get a statement that 4 = 4.

b) You get a statement that -2 = 6

4. You are offered two sales jobs. One offers an annual salary of $55,000 plus 1.5% of your yearly sales. The other offers $52,000 plus 2% of your yearly sales. How much do you have to sell in order for the second to be a better deal?

5. Use back substitution to solve.

$$x - 7y + 8z = -14$$
$$y - 9z = 26$$
$$z = -3$$

6. Get the following to Row Echelon form.

$$2x \quad + 6z = -9$$
$$3x - 2y + 11z = -16$$
$$3x - y + 7z = -11$$

7. Write the following as an augmented matrix and then use a calculator to get it to RREF to solve it.

$$2x \quad + 6z = -9$$
$$3x - 2y + 11z = -16$$
$$3x - y + 7z = -11$$

8. Let A and B be the matrices shown. Find the following:

$$A = \begin{bmatrix} 5 & 4 \\ -2 & 9 \end{bmatrix} \qquad B = \begin{bmatrix} 8 & 2 \\ -4 & 0 \end{bmatrix}$$

B + A

A – 2B

9. Let A and B be the same matrices as in Problem 8.

a) Find AB.

b) If $\frac{1}{2}X - B = A$, find matrix X.

10. Let A be the same matrix as in Problem 8.

a) What are the dimensions of a matrix K if $A \cdot K = L$ and the dimensions of matrix L are 2×5?

b) Provide dimensions for a matrix D so that $A \cdot D$ is undefined.

11. Find the inverse matrix for matrix T.

$$T = \begin{bmatrix} 5 & 2 \\ -7 & 3 \end{bmatrix}$$

12. Show the matrix you found in Problem 11 is the inverse of matrix T.

13. Use an inverse matrix to solve the following system of equations and show your steps.

$$2x + 3y = -10$$
$$4x - y = 1$$

14. State the determinant of the following matrix and whether that indicates it has an inverse or not.

$$\begin{bmatrix} 12 & 4 \\ -9 & -3 \end{bmatrix}$$

15. The flow of traffic (in vehicles/hr) through a network of streets is shown. Solve the system and provide a possible traffic flow.