

Unit 7 Review

Name _____ Per ____

Intro Precalculus

#1 – 3: Identify the number of solutions for each system. If the system has at least one solution, then solve.

$$1) \left[\begin{array}{ccc|c} 1 & -2 & 1 & 5 \\ 0 & 1 & 4 & 7 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

$$2) \left[\begin{array}{ccc|c} 1 & 3 & -1 & 11 \\ 0 & 1 & 2 & 16 \\ 0 & 0 & 1 & 4 \end{array} \right]$$

$$3) \left[\begin{array}{ccc|c} 1 & -3 & 2 & 2 \\ 0 & 1 & 9 & -1 \\ 0 & 0 & 0 & 6 \end{array} \right]$$

#4 – 7: Use any strategy to write each matrix in row-echelon form. Then give the solution to the system.

$$4) \begin{cases} x + y + z = 4 \\ x - y - z = 0 \\ x - y + z = 2 \end{cases}$$

$$5) \begin{cases} x + 2y - z = -1 \\ x - y + z = 4 \\ x + y - 3z = -2 \end{cases}$$

$$6) \begin{cases} 2x - 2y + 2z = 5 \\ x - y + z = 2 \\ 2x + y - z = 1 \end{cases}$$

$$7) \begin{cases} x - 3y + z = 1 \\ -2x + y + 3z = -7 \\ x - 4y + 2z = 0 \end{cases}$$

#8 – 13: Perform the indicated operation, if possible, using the matrices below:

$$A = \begin{bmatrix} 2 & -1 & 2 \\ 5 & 3 & -1 \end{bmatrix} \quad B = \begin{bmatrix} 0 & -2 \\ 3 & 2 \\ 1 & -5 \end{bmatrix} \quad C = \begin{bmatrix} 1 & 2 & 3 \\ -1 & 1 & 2 \\ -1 & 2 & 1 \end{bmatrix} \quad D = \begin{bmatrix} -2 & 3 & 1 \\ 3 & -2 & 4 \end{bmatrix}$$

8) $2A - D$

9) $D + 3A$

10) CB

11) AB

12) BC

13) DB

#14 – 15: Find the values of x, y, and z so that the following matrices are equal.

14) $\begin{bmatrix} 2x & y+7 \\ z & 4 \end{bmatrix} = \begin{bmatrix} -10 & 13 \\ 6 & 4 \end{bmatrix}$

15) $3 \begin{bmatrix} x & 2y-1 \\ z & 3 \end{bmatrix} = \begin{bmatrix} -12 & 21 \\ 27 & 9 \end{bmatrix}$

#16 – 17: Write each system as a matrix equation, then solve using the multiplicative inverse.

16) $\begin{cases} 3x + 5y = 9 \\ 2x - 3y = -13 \end{cases}$

17) $\begin{cases} 7x + 2y = 0 \\ 2x + y = -3 \end{cases}$