Matrix Review WS   Name ______________________________

#1-3. Use these matrices:

$$A = \begin{bmatrix} -1 & 2 \\ 4 & 3 \\ -7 & 6 \end{bmatrix} \qquad B = \begin{bmatrix} -5 & -2 & -1 & 0 \\ 3 & -3 & 2 & 4 \end{bmatrix}$$

1. What are the dimensions of: (a) matrix A? ___________ (b) matrix B? ___________

2. In matrix B, what element is in the first row, second column? ______________

3. In matrix A, identify the element $a_{2,1}$ ____________

#4-5. Complete each of the following to make the statement true.

4. To be able to add or subtract matrices, the _______________________ of the matrices must be the _______________ .

5. To be able to multiply matrices, the number of ________________ in the first matrix must be the same as the number of ________________ in the second matrix.

#6-8. Provide the missing dimensions so that each of the following will be a true statement.

6. $A_{5x3} \cdot B_{3x2} = P\_\_\_\_\_\_$ 7. $A_{2x2} \cdot B\_\_\_\_\_\_ = P_{2x6}$ 8. $A\_\_\_\_\_\_ \cdot B_{8x3} = P_{1x3}$

#9-10. Solve the following matrix equations for x, y, and z.

9. $\begin{bmatrix} 3x+1 & 5 \\ -4z & -3 \end{bmatrix} = \begin{bmatrix} x-15 & 5 \\ 18 & \frac{1}{4}y+2 \end{bmatrix}$	10. $2\begin{bmatrix} 4+3y & 1 \\ -5 & x \end{bmatrix} + \begin{bmatrix} 1 & 6-5z \\ 2 & 4 \end{bmatrix} = \begin{bmatrix} y-3 & 3 \\ -8 & -2 \end{bmatrix}$

#11-19. Perform the indicated operations. If not possible, give an explanation.

11. $\begin{bmatrix}8&4\\3&0\end{bmatrix}-3\begin{bmatrix}2&4\\-1&-6\end{bmatrix}=$	12. $\begin{bmatrix}2&3\\-1&4\end{bmatrix}\begin{bmatrix}5&1\\2&-6\end{bmatrix}=$	13. $\begin{vmatrix}2&-2\\5&3\end{vmatrix}=$
14. $\begin{bmatrix}1&20&8\\30&6&9\end{bmatrix}+\frac{1}{2}\begin{bmatrix}2&4&8\\-8&-6&12\end{bmatrix}=$	15. $I_{5x5}=$	16. $\begin{bmatrix}-2&1\\3&-2\\4&3\end{bmatrix}\cdot\begin{bmatrix}1&-1&3\\2&1&-2\end{bmatrix}$
17. $B=\begin{bmatrix}2&-2\\5&3\end{bmatrix}$, find B^{-1}	18. $A=\begin{bmatrix}-2&3&1\\-1&0&6\\2&4&-1\end{bmatrix}$, find $\lvert A\rvert$	19. $A=\begin{bmatrix}7&-2\\-9&3\end{bmatrix}$, find A^{-1}