GSE Pre-Calculus Name: _____

Unit 5 Matrices - Inverse and Determinants Date: _____ Block: _____

BY HAND: For the 2x2 matrices, evaluate the determinant and then find the inverse of the matrix. For the 3x3 matrices, evaluate the determinant only.

1. $\begin{bmatrix} -4 & 2 \\ 8 & 0 \end{bmatrix}$

2. $\begin{bmatrix} 1 & 4 \\ 5 & 1 \end{bmatrix}$

3. $\begin{bmatrix} -6 & 5 \\ 8 & 10 \end{bmatrix}$

4. $\begin{bmatrix} 3 & 2 & -5 \\ 6 & 0 & -1 \\ 0 & -1 & 3 \end{bmatrix}$

5. $\begin{bmatrix} 7 & -7 \\ 11 & 4 \end{bmatrix}$

6. $\begin{bmatrix} 1 & 3 \\ -2 & -6 \end{bmatrix}$

7. $\begin{bmatrix} 4 & 6 \\ 9 & 11 \end{bmatrix}$

8. $\begin{bmatrix} 1 & 2 & 1 \\ 6 & 5 & 0 \\ 1 & 4 & -2 \end{bmatrix}$

USING TECHNOLOGY: Evaluate the determinant and then find the inverse of the matrix.

9. $\begin{bmatrix} 5 & 9 \\ 8 & 1 \end{bmatrix}$

10. $\begin{bmatrix} -1 & 2 & 7 \\ 2 & -1 & -1 \\ 3 & 5 & 2 \end{bmatrix}$

11. $\begin{bmatrix} 0 & 3 \\ -2 & 9 \end{bmatrix}$

12. $\begin{bmatrix} 3 & 12 & 1 \\ -10 & 9 & 8 \\ -5 & 4 & -1 \end{bmatrix}$

Solve for x.

13. $\begin{vmatrix} 2 & 6 \\ 1 & x \end{vmatrix} = 2$

14. $\begin{vmatrix} x & 3 & -1 \\ 2 & 1 & -2 \\ 4 & 1 & x \end{vmatrix} = 10$

15. $\begin{vmatrix} x & 3 \\ -4 & x \end{vmatrix} = 7x$

16. $\begin{vmatrix} 2x & 0 & 3 \\ 7 & 5 & -1 \\ 4 & 2 & x \end{vmatrix} = 9x^2 - 3x + 12$

17. Are each of the following properties applicable to matrices? **Answer YES or NO**

a. The Commutative Property of Addition _____
b. The Associative Property of Addition _____
c. The Commutative Property of Multiplication _____
d. The Associative Property of Multiplication _____

Review: SRT 10 & 11: Law of Cosines and Sines

For the following, find the number of solutions it has (none, one or two). If it has one solution, solve the triangle. If it has two solutions, solve both triangles.

1. In $\triangle ZXY$, $m\angle Z = 137°$, $y = 26$ yd, $z = 14$ yd

2. In $\triangle STR$, $m\angle R = 105°$, $r = 33$ mi, $t = 10$ mi

3. In $\triangle TRS$, $m\angle T = 47°$, $s = 17$ mi, $t = 16$ mi

For the following, solve the triangle.

4. In $\triangle HPK$, $p = 29$ yd, $k = 24$ yd, $m\angle H = 91°$

5. In $\triangle CAB$, $b = 26.7$ yd, $m\angle C = 71.9°$, $a = 27.8$ yd

Solve.

6. The sides of a triangle are 50 meters, 70 meters and 85 meters long. Find the measure of the largest angle to the nearest degree.

7. Two sides of a triangular plot have lengths of 400 inches and 600 inches. The angle formed by those sides measures 46.3°. Find the perimeter of the plot to the nearest foot.