Algebra II
Calculator Worksheet
Matrices

Use the following matrices to perform the given operations

$$A=\begin{bmatrix}5 & 1\\ -4 & 2\end{bmatrix} \qquad B=\begin{bmatrix}2 & 5\\ -1 & 3\end{bmatrix} \qquad C=\begin{bmatrix}4 & 6\\ 6 & 9\end{bmatrix} \qquad D=\begin{bmatrix}6 & 8 & 10\\ 10 & 4 & 2\\ -3 & 0 & -5\end{bmatrix}$$

$$E=\begin{bmatrix}9 & 2 & -1\\ 6 & -3 & 0\\ 4 & 2 & 1\end{bmatrix} \qquad F=\begin{bmatrix}-3 & -4 & -5\\ -1 & -2 & -3\end{bmatrix} \qquad G=\begin{bmatrix}2 & 0\\ -1 & 4\\ 6 & 8\end{bmatrix} \qquad H=\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$$

1. A x C
2. 3D – 4E
3. E x D
4. B X H
5. F x G
6. A x B
7. A^{-1}
8. $|B|$
9. E^{-1}
10. det E
11. C^{-1}
12. $|G|$
13. 2F
14. B x H
15. ½ F x G
16. 3A – 4C

For the following systems of equations, write the matrix equation and then solve.

1. $3x - 2y = 12$
   $2x + y = -1$

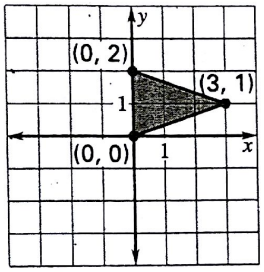
2. $5x + 4y = 12$
   $9x - 8y = 0$

3. $3x - 2y + z = 0$
   $2x + 3y = 12$
   $y + 4z = -18$

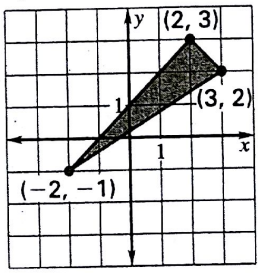
4. $5x + 4y + 6z = 40$
   $x + 2y + 3z = 16$
   $-7x + 9y + 8z = -72$

Use a determinant to find the area of the triangle.

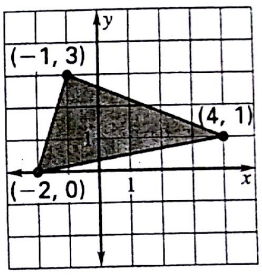
16.



17.



18.



Electoral Votes **In Exercises 19–22, use the following information.**
In the 1968 presidential election, 538 electoral votes were cast. Of these, x went to Richard M. Nixon, y went to Hubert H. Humphrey, and z when to George C. Wallace. The value of x is 110 more than y. The value of y is 145 more than z. *(Source: 1997 Information Please Almanac)*

19. Write an equation involving the variables x, y, and z, that represents the total number of electoral votes.

20. Write an equation that relates the number of electoral votes received by Nixon, x, to the number of electoral votes received by Humphrey, y.

21. Write an equation that relates the number of electoral votes received by Nixon, x, to the number of electoral votes received by Wallace, z.

22. Use Cramer's rule to find the values of x, y, and z.