Applications of Linear Systems and Matrices:

Match the following examples with their concept. Use your knowledge of the unit and topics discussed and answer to the best of your ability.

1. Given these endpoints: (1,0) (2,2) (4,3) a. Cramer’s Rule create a matrix and use its determinant to

learn more about the shape created by these

endpoints.

1. Determine whether or not these points b. Area of a Triangle

are on the same line.

(-2,-2) (1,1) (7,5)

1. Solve the following system of equations: c. Cryptography

4x – 2y = 10

3x – 5y = 11

1. Decode the following matrices: d. Collinear Points

[13 5 5] [20 0 13] [5 0 13] [15 14 4] [1 25 0]

Were you right? If yes, what helped you choose your answers? If no, write the correct answers below.

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Notes:

We will walk through these topics and I will work the following examples. Please use this page and the next to take any and all notes that you need. Now let’s have some fun!

1. Find the area of triangle given by these vertices:

(-2, 4) (2,3) (-1, 5)

1. Find out if these points are collinear:

(3, -1) (0,-3) (12,5)

1. Use Cramer’s Rule to solve the system of equations:

6x – 5y =17

-13x + 3y = -76

1. Encode the following message:

CALL ME TOMORROW

Now it’s your turn. Get a computer and search for activities and websites that can help you learn and practice finding the area of a triangle, collinear points, Cramer’s Rule and coding messages.

What Did You Find?

Please list 2 websites that you found that you would like to share with the class:

1.
2.

More Practice:

Work the following problems:

1. Use Cramer’s Rule to solve the system of equations:

-7x + 11y = -1

3x – 9y = 9

1. Find the area of the figure with these vertices. Draw a picture to show the figure.

(-3, 5) (2,6) (3,-5)

1. Use the determinant to find out if these points are collinear:

(3,-5) (6,1) (4,2)

1. Use the matrix to code the message:

GONE FISHING 1 2 2

 3 7 9

 -1 -4 -7

1. Find a value of x that makes these points collinear:

(1, -2) (x,2) (5,6)

Answers to Problems:

Matching:

1. b
2. d
3. a
4. c

In-Class Examples will be worked by me and the students will be expected to write down all processes and steps.

Independent Practice Answers:

1. (-3, -2)
2. 28
3. Not collinear
4. 38 63 51 -1 -14 -32 58 119 133 44 88 95
5. x = 3