

100 points

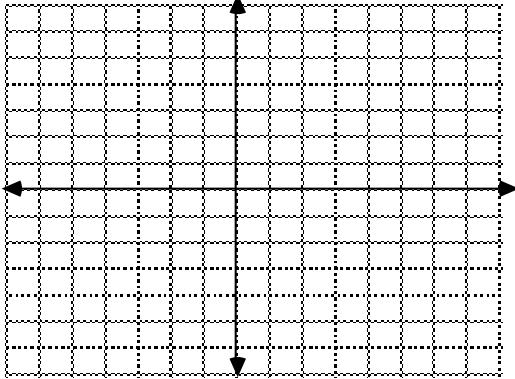
Name: \_\_\_\_\_

Math 125 Test 4 - Sample

Show all work in an organized manner. No partial credit will be given if I cannot easily determine what you did. Write answers as ordered pairs where appropriate. Take time to check! Because this is a take home test I expect exceptional work. Partial credit will be limited.

- (1) Solve the system  $\begin{cases} x + 2y = 6 \\ 2x - y = 7 \end{cases}$  three different ways as requested below. No credit if the wrong method is used. In part (d) you are asked to check.

(a) Solve by graphing. Label the graphs (which is which?) and label one point on each graph. (10 points)



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(b) Solve the system using the substitution method. (7 points)

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(c) Solve the system using the elimination method. (7 points)

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(d) Show a complete check to the answer in part c. (3 points)

(2) Solve using any method. State the name of the method you use. Show all steps clearly.

(7 points each)

(a) 
$$\begin{cases} 2x + 10y = 3 \\ x = 1 - 5y \end{cases}$$

(b) 
$$\begin{cases} 3x - 2y = 6 \\ x - 2 = y \end{cases}$$

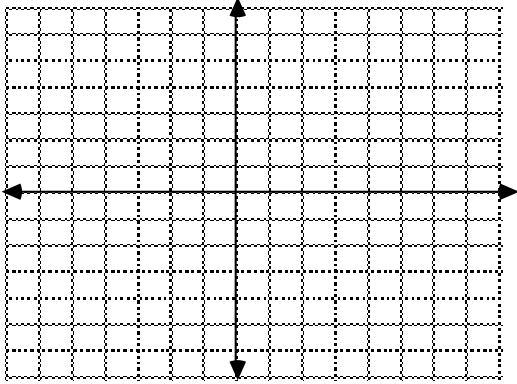
(c) 
$$\begin{cases} 4x - 2y = 10 \\ 2x + 3y = -7 \end{cases}$$

(d) 
$$\begin{cases} \frac{1}{5}x + \frac{2}{3}y = -\frac{8}{5} \\ 3x - y = 9 \end{cases}$$

(e) 
$$\begin{cases} 9x + 4y = -3 \\ 6x = -6y - 7 \end{cases}$$

- (3) Graph the solution to the system of inequalities. 
$$\begin{cases} y > 3x \\ 2x + 3y \geq 6 \end{cases}$$
 Label both lines and make sure your solution is clearly shown.

(10 points)



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- (4) Set up a SYSTEM of equations with TWO variables and solve. Be sure to show what your variables represent.

A certain plane flying with the wind travels 540 miles in 2 hours. Later, flying against the wind, the plane travels 690 miles in 3 hours. Find the speed of the plane in still air and the speed of the wind. (9 points)

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(5) Set up a SYSTEM of equations with TWO variables and solve. Be sure to show what your variables represent..

A collection of 19 coins consists of dimes and quarters. How many of each type of coin is there in the collection if the total value is \$2.95?  
(9 points)

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(6) Find the equation of each of the following lines. Express your answer in slope intercept form.

(5 points each)

(a) The line through (0,2) and parallel to the line  $2x-4y=7$ .

(b) The line through (2, -5) and (3, 2)