

# Adv Alg 2 Chapter 3 Review

Name \_\_\_\_\_

1. Solve using substitution.

$$y = \frac{2}{3}x - 4$$
$$2x - 3y = 6$$

2. Solve using elimination.

$$3x + 4y = 7$$
$$2x - 5y = -2$$

3. Solve using determinants.

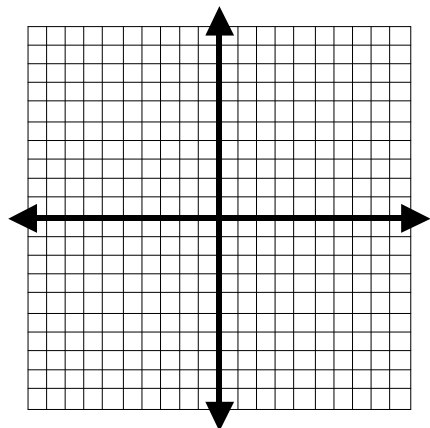
$$y = \frac{2}{5}x + 3$$
$$4x - 2y = 3$$

4. Solve by any method.

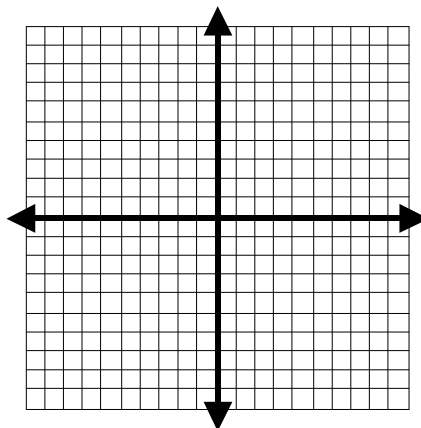
$$x - 4y = 5$$
$$3x + 2y = -10$$

Graph in (x,y)

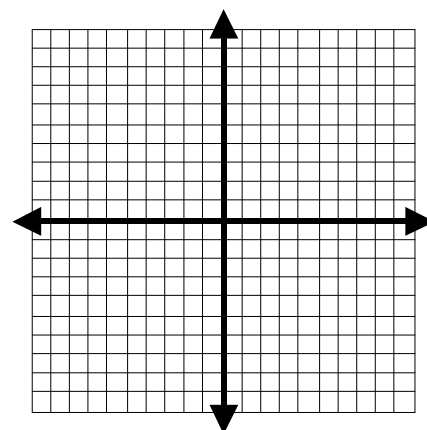
5.  $x \geq 4$



6.  $2x - y < 4$



7.  $3x + y \geq -6$   
 $y < 2$



8. What does Cramer's Rule look like when the answer is INFINITELY MANY SOLUTIONS?

9. What does Cramer's Rule look like when the answer is NO SOLUTION?

10. What does the solution to a system of equations mean? What is it?

11. Write the constraints and objective function for the following linear programming problem.

DO NOT SOLVE.

A fruit grower in Apple Hill has 150 acres of land available to raise apples and cherries. The profits are \$420.00 per acre for apples and \$705.00 per acre for cherries. It takes one day to trim an acre of apple trees, and two days to trim an acre of cherry trees, and there are 240 days per year available for trimming. It takes 0.3 day to pick an acre of apples and 0.1 day to pick an acre of cherries, and there are 30 days available for picking. Find the number of acres of each kind of fruit tree that should be planted to maximize profit. What is the maximum profit?

12. Evaluate using the “two-column” method.

$$\begin{vmatrix} -2 & 0 & 4 \\ 3 & 1 & -1 \\ 5 & -2 & 2 \end{vmatrix}$$

13. Fill in the determinants in the quotient to be used to solve the system for y. DO NOT SOLVE.

$$3x - 2y + 5z = -6$$

$$2x + y + 7z = 8$$

$$x - 6y - 3z = -1$$

$$y = \frac{\begin{vmatrix} & & \\ & & \\ & & \end{vmatrix}}{\begin{vmatrix} & & \\ & & \\ & & \end{vmatrix}}$$

14. Solve by elimination

$$3x + 2y + z = 4$$

$$5x + 3y - z = -2$$

$$2x + z = 1$$

15. Solve by determinants.

$$x + y - 2z = 7$$

$$-x + 4y + 3z = 2$$

$$2x - 3y + 2z = -2$$

16. Scientists have monitored the number of chirps per minute made by crickets and the corresponding temperatures.

Number of chirps per minute (x)	136	165	98	110	150	210	84	158	221	178
Temperature in degrees Fahrenheit (y)	72	84	68	75	75	92	60	80	94	89

a. Use a calculator to find the line of best fit, rounding to 4 decimal places.

b. What is the correlation coefficient, r?

c. Describe the correlation.

d. Using your equation from part a, find the temperature if the number of chirps per minute is 100.

ANSWERS: 1. No solution 2.  $(\frac{27}{23}, \frac{20}{23})$  3.  $(\frac{45}{16}, \frac{33}{8})$  4.  $(-\frac{15}{7}, -\frac{25}{14})$

5.

6.

7.

8.  $\frac{0}{0}$

9.  $\frac{\#}{0}$  # not zero

10. Where the lines intersect, it is a point(ordered pair)

11. x = # apples, y = # cherries,  $x + y \leq 150$ ,  $x + 2y \leq 240$ ,  $0.3x + 0.1y \leq 30$ ,  $x \geq 0$ ,  $y \geq 0$

12. -44

$$13. y = \frac{\begin{vmatrix} 3 & -6 & 5 \\ 2 & 8 & 7 \\ 1 & -1 & -3 \end{vmatrix}}{\begin{vmatrix} 3 & -2 & 5 \\ 2 & 1 & 7 \\ 1 & -6 & -3 \end{vmatrix}}$$

14. (-1,2,3)

15. (3,2,-1)

16 a.  $y = 0.2313x + 43.9731$

16 b.  $r = 0.9576$  c. strong positive

16 d. 67°F