Name:	Date:	Class:

## Solving Linear Systems Review ... use separate sheet of paper to show ALL work / review is due on day of test !!

- 1. Two music stores offer guitar lessons to their customers. Guitar Center charges \$10 per hour plus \$50 for the guitar rental. Austin Guitar Store charges \$30 per hour but only charges \$10 to use the school's guitar.
  - **a.** Write a system of equations to represent the cost *c* for guitar lessons for *h* hours.
  - **b.** Find the number of hours for which the costs are the same.

### #2 – 3. Find the slope of the line through the pair of points.

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

#4 – 5. Write in point-slope form an equation of the line passing through the given point with the given slope. 4. slope = -2; (4, -2)5.  $slope = \frac{2}{3}; (1, 5)$ 

### #6 – 7. Find an equation for the line:

6. through (2, 4) and parallel to y = 5x + 4.

#8 – 9. Graph each equation. (see attached sheet for graph) 8.  $y = -\frac{1}{3}x + 2$  9. y = 2x - 5

- 10. Graph each inequality 8x 4y > 6. (see attached sheet for graph)
- 11. Write an inequality for the graph. –

#12 – 13. Without graphing, classify each system as *independent*, *dependent*, or *inconsistent*.

12.  $\begin{cases} -x - y = 5\\ 3x - y = -3 \end{cases}$  13.  $\begin{cases} y = -4x - 5\\ 8x + 2y = -10 \end{cases}$ 

14. Solve the system by graphing.  $\begin{cases} -x - y = 0\\ 2x - 2y = -12 \end{cases}$  (see attached sheet for graph)

# #15-16. Solve the system of inequalities by graphing. (see attached sheet for graph) 15. $\begin{cases} y \le -3x - 1 \\ y > 3x - 1 \end{cases}$ 16. $\begin{cases} x \ge 0 \\ y > -4 \end{cases}$

- 17. Find the values of x and y that maximize the objective function P = 2x + 5y for the graph. What is the maximum value?
- 18. Given the system of constraints, name all vertices. Then find the maximum value of the given objective function.

 $\begin{pmatrix}
x \ge 0 \\
y \ge 0 \\
3x - y \le 6 \\
5y \le 5x + 10
\end{pmatrix}$ 

Maximum for P = 8x - 5y

(use graph on attached sheet)



7. through (-2, -3) and perpendicular to  $y = -\frac{3}{5}x + 7$ 

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19. Fly-High Airlines sells business class and tourist class seats for its charter flights. To charter a plane at least 5 business class tickets must be sold and at least 9 tourist class tickets must be sold. The plane does not hold more than 20 passengers. Fly-High makes \$40 profit for each business class ticket sold and \$45 profit for each tourist class ticket sold. In order to maximize its profits, how many of each type of ticket must be sold? (*see attached sheet for graph*).

### #20 – 21. Solve the system by the method of substitution.

20. 
$$\begin{cases} 3x + y = -12 \\ 2x - 5y = -8 \end{cases}$$
21. 
$$\begin{cases} x - 2y = 0 \\ 5x - y = -9 \end{cases}$$

#22 –25. Use the elimination method to solve the system.

22. 
$$\begin{cases} 4x - 3y = 5 \\ 4x - 5y = 11 \end{cases}$$
23. 
$$\begin{cases} 4x + 2y = -12 \\ 5x - 5y = 15 \end{cases}$$
24. 
$$\begin{cases} x - 2y = -3 \\ -x + 2y = -1 \end{cases}$$
25. 
$$\begin{cases} x - 3y = 6 \\ 3x - 9y = 18 \end{cases}$$

- 26. Your club is baking vanilla and chocolate cakes for a bake sale. They need at most 20 cakes. You cannot have more than 12 vanilla cakes. Write and graph a system of inequalities to model this system (*see attached sheet for graph*).
- 27. A new restaurant needs to make a combined total of 32 menus. The number of lunch menus needed is three times the number of breakfast menus needed. Based on this information, would it be reasonable for the restaurant to make 20 lunch menus and 12 breakfast menus? Why or why not?

#### **From Functions Unit:**

28. Use interval notation to represent the set of numbers.



29. Write the equation that is the translation of  $y = \sqrt{x}$  right 1 unit and up 5 units.

#30 – 31. Evaluate the following expression given the following functions: f(x) = 2x + 1  $h(x) = x^2 - 7$ 30. f(3) - h(4) 31. 2h(2) + 3f(-2)

- 32. Describe in words the transformation on the graph of  $h(x) = 3(2^x)$  from the graph of  $f(x) = 2^x$ .
- 33. Describe in words the transformation on the graph of g(x) = -|x 4| from the graph of f(x) = |x|.

