$\qquad$ Date: $\qquad$ Class: $\qquad$

## Solving Linear Systems Review

- $\quad$ The review is due on the day of the test.
- Review will not be graded unless all work and answers are written on separate paper.
- Graphs noted on review are excluded, do on attached graph paper.
- In order to be eligible to retest, this review must be complete, accurate, and turned in.
- NO WORK NO CREDIT

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 $\operatorname{cost} c$ 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 $y=5 x+4$.
7. through $(-2,-3)$ and perpendicular to $y=-\frac{3}{5} x+7$
\#8 - 9. Graph each equation. (see attached sheet for graph)
8. $y=-\frac{1}{3} x+2$
9. $y=2 x-5$
10. Graph each inequality $8 x-4 y>6$. (see attached sheet for graph)
11. Write an inequality for the graph.

12. Solve the system by graphing. $\left\{\begin{array}{l}-x-y=0 \\ 2 x-2 y=-12\end{array}\right.$ (see attached sheet for graph)
\#15-16. Solve the system of inequalities by graphing. (see attached sheet for graph)
13. $\left\{\begin{array}{l}y \leq-3 x-1 \\ y>3 x-1\end{array}\right.$
14. $\left\{\begin{array}{l}x \geq 0 \\ y>-4\end{array}\right.$

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17. Find the values of $x$ and $y$ that maximize the objective function $P=2 x+5 y$ 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.

$$
\left\{\begin{array}{c}
x \geq 0 \\
y \geq 0 \\
3 x-y \leq 6 \\
5 y \leq 5 x+10
\end{array}\right.
$$

Maximum for $P=8 x-5 y$
(use graph on attached sheet)
19. A gold processor has two sources of gold ore, source A and source B. In order to keep his plant running, at least 4 tons of ore must be processed each day. Source A costs $\$ 15$ per ton to process, and source $B$ costs $\$ 5$ per ton to process. Costs must be kept to less than $\$ 60$ per day. The amount of source $B$ cannot exceed three times the amount of source $A$. They can extract 3 oz . of gold per ton from source A, and extract 4 oz . of gold per ton from source B. How many tons of ore from both sources must be processed each day to maximize the amount of gold extracted?
(see attached sheet for graph).

## \#20 - 21. Solve the system by the method of substitution.

20. $\left\{\begin{array}{l}3 x+y=-12 \\ 2 x-5 y=-8\end{array}\right.$
21. $\left\{\begin{array}{l}x-2 y=0 \\ 5 x-y=-9\end{array}\right.$
\#22-25. Use the elimination method to solve the system.
22. $\left\{\begin{array}{l}4 x-3 y=5 \\ 4 x-5 y=11\end{array}\right.$
23. $\left\{\begin{array}{l}4 x+2 y=-12 \\ 5 x-5 y=15\end{array}\right.$
24. $\left\{\begin{array}{l}x-2 y=-3 \\ -x+2 y=-1\end{array}\right.$
25. $\left\{\begin{array}{l}x-3 y=6 \\ 3 x-9 y=18\end{array}\right.$
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?

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SPIRAL: 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: $f(x)=2 x+1 \quad h(x)=x^{2}-7$
30. $f(3)-h(4)$
31. $2 h(2)+3 f(-2)$
32. Describe in words the transformation on the graph of $h(x)=3\left(2^{x}\right)$ 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 $f(x)=|x|$.

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10.

14.

15.

16.

18.


26.


