Algebra 2—H HW #____ Name_____

Chapter 3 Review

Date_____ Col._____

**Do #1 - 9 on your own paper. Do #10 - 15 on the back.

#1 - 4--solve each system algebraically:

1. $\begin{cases} 3x+2y=4 \\ \frac{1}{3}(2x+y)=1 \end{cases}$

2. $\begin{cases} \frac{4}{x}+\frac{6}{y}=2 \\ \frac{-6}{x}+\frac{9}{y}=-15 \end{cases}$

3. $\begin{cases} -2x+y+6z=1 \\ 3x+2y+5z=16 \\ 7x+3y-4z=11 \end{cases}$

4. Determine a, b, and c so that the graph of $y=ax^2+bx+c$ will contain the points (2, 1), (-3, 31), and (4, 17).

#5 - 6--write a system of equations and solve for the answers.

5. A weather-service plane flew 2100 km east with the jet stream (a high-speed, high-altitude, west-to-east wind) as a tail wind in $2\frac{1}{2}$ hours. The return trip west with a head wind took $3\frac{3}{4}$ hours. Find the speeds of the plane and the jet stream.

6. A museum charges \$4 for regular admissions, \$3 for senior citizens, and \$2.50 for children. One day 500 tickets were sold and \$1740 was brought in. The number of regular admissions sold was 100 more than the senior citizens' and children's combined. How many of each kind of admissions were sold?

7. Write the linear equation $-2x+y-6z=24$ as a function of x and y. Then evaluate the function for $f(-12,7)$.

8. Write a linear equation in 3 variables if the x-intercept is $\frac{1}{2}$, the y-intercept is 1, and the z-intercept is $\frac{-5}{2}$.

9. The VHS Staffulty Club is planning a staff barbecue. They will need to purchase a vinyl tablecloth for \$6, bottled water at \$4.99 per case, and soft drinks for \$3.50 per 12-pack. Write a linear model for the total amount the Staffulty Club will spend on these items, as a function of cases of water and 12-packs of soda. Find the total amount of money spent, if six cases of water and ten 12-packs of soda are purchased.

****

Answers: 1. (2,–1) 2. $\left(\frac{2}{3},\frac{-3}{2}\right)$ 3. (4, -3, 2) 4. a = 2, b = -4, c = 1

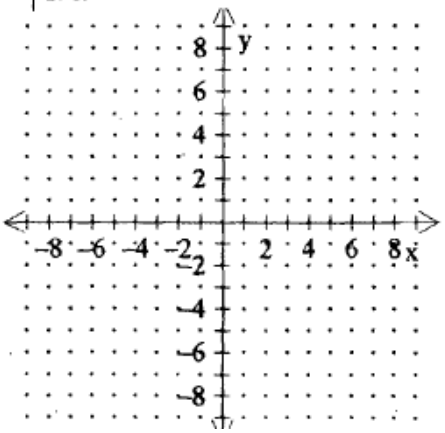
5. plane 700 km/h, wind 140 km/h 6. 300 regular, 80 senior, 120 children

7. $f(x,y)=\frac{-1}{3}x+\frac{1}{6}y-4$; $\frac{7}{6}$ 8. you tell me! 9. $f(w,s)=6+4.99w+3.50s$; \$70.94

10. Graph the system of inequalities:

$3x+4y \geq 12$

$|x-1| \leq 2$

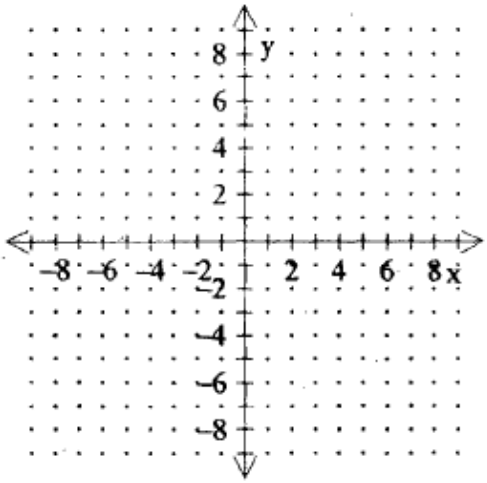


11. Find the maximum and minimum values of $C = 3x + 5y$ subject to the following constraints:

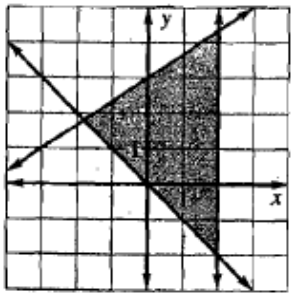
$x+y \geq 2$

$4x-y \leq 8$

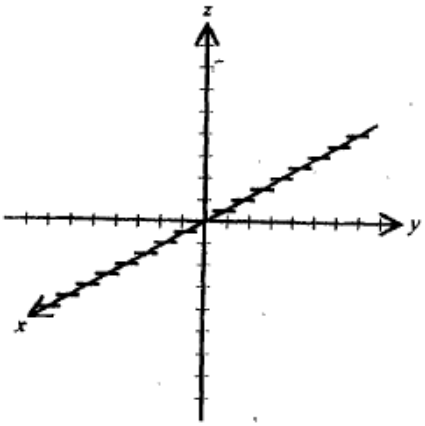
$3y \leq 2x+6$



12. Write a system of inequalities for the region graphed.

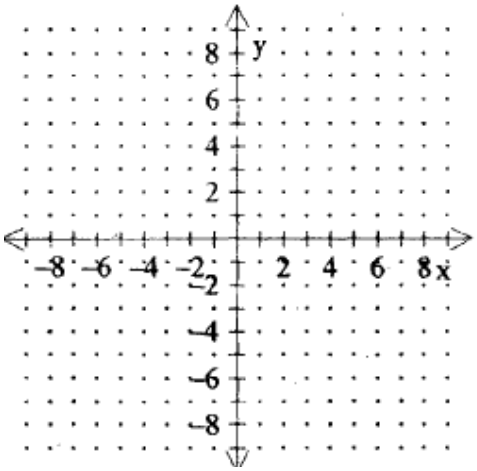


13. Sketch the graph of $-3x + 2y - 6z = 12$.



14. Graph the system

$$f(x)=\begin{cases} -3x+4, \text{ if } x<2 \\ \frac{1}{2}x-7, \text{ if } x \geq 2 \end{cases}$$



15. Graph: $y = \frac{2}{3}|x+1| - 4$