Unit 1, 2 After Test Homework

1. Find the complete solution for
   a) \(|2x+1|=5\)  
b) \(|5-6x|=13\)

2. Graph the solution to the equation.
   a) \(5+4|x-2|=41\)  
b) \(7-3|2x+4|=1\)

3. Find the complete solution for
   a) \(|x+5|=-2\)  
b) \(-3|2x+5|=21\)

4. Find the complete solution for
   a) \(|4x+5|>25\)  
b) \(|2x-3|\leq17\)

5. Solve and then graph the solution to the inequality.
   a) \(|3x-9|<27\)  
b) \(|2x+5|\geq13\)

6. Graph the following inequality.
   a) \(3x+5y\leq12\)  
b) \(2x-5y\leq15\)

7. Graph the solution to the system of inequalities
   a) \[
   \begin{align*}
   y &\leq x \\
   y &\geq -3
   \end{align*}
   \]
   b) \[
   \begin{align*}
   y &> -x \\
   y &< 4
   \end{align*}
   \]

8. Write the system of inequalities represented by the graph.
   a)
   b)

9. Determine which point lies in the solution set for the system.
   a) \[
   \begin{align*}
   y-2 &\geq 5 \\
y &\leq x
   \end{align*}
   \]
   \((3,4), (5,7), (9,7), (-5,8)\)  
   b) \[
   \begin{align*}
   x-y &< 1 \\
y &\geq -x+2
   \end{align*}
   \]
   \((-1,2), (1,0), (2,1), (-1,3)\)

10. Find the solution for \(x\) in the following system of equations.
    a) \[
    \begin{align*}
    7x+11y &= 23 \\
    12x-10y &= -76
    \end{align*}
    \]
    b) \[
    \begin{align*}
    8x+13y &= 30 \\
    7x+11y &= 27
    \end{align*}
    \]

11. A restaurant purchases several gallons of lowfat milk and several gallons of nonfat milk. The lowfat milk costs \$2 per gallon and the nonfat milk costs \$3 per gallon. They bought a total of 21 gallons of milk and paid a total of \$54. How many gallons of nonfat milk did they buy?

    b) At the grocery store, you purchase some brown rice and some wild rice. The brown rice costs \$4 per pound and the wild rice costs \$7 per pound. If you purchase 15 pounds of rice at a cost of \$81, how many pounds of wild rice did you purchase?

12.
a) Ally and Gina decided to make a trail mix for their hike using raisins and almonds. The raisins cost $5 per bag and the almonds cost $6 per bag. They purchased a total of 9 bags and paid a total of $48. How many bags of raisins and how many bags of almonds did they purchase?

b) Juan and Yeng were raising money for their club by having a car wash. They decided to charge $5 per car and $7 per truck. They washed a total of 35 cars and raised a total of $205. Determine how many cars and how many trucks they washed.

13. Solve the system of equations.
   a) \[
   \begin{align*}
   2x + z &= -10 \\
   -3x + 2y &= 13 \\
   -x - 3y + 5z &= -23
   \end{align*}
   \]
   b) \[
   \begin{align*}
   2y - 3z &= -22 \\
   -3x + z &= 1 \\
   4x - 3y + 2z &= 27
   \end{align*}
   \]

14. Find the solution for
   a) \[
   \left| \frac{x}{3} \right| = 2
   \]
   b) \[
   \left| \frac{4 + x}{2} \right| = 3
   \]

15. Find the solution for
   a) \[-3[5x + 2] < -12\]
   b) \[-2[3x - 1] \geq -14\]

16. Graph the system of inequalities
   a) \[
   \begin{align*}
   x &\leq -1 \\
   y &\geq -3 \\
   y &\leq x + 2
   \end{align*}
   \]
   b) \[
   \begin{align*}
   x &\geq -2 \\
   y &\leq 1 \\
   3x - 2y &\geq 6
   \end{align*}
   \]

17. Solve the system of equations.
   a) \[
   \begin{align*}
   \frac{3}{2}x + \frac{1}{4}y &= 7 \\
   5x - \frac{2}{3}y &= \frac{7}{3}
   \end{align*}
   \]
   b) \[
   \begin{align*}
   \frac{1}{2}x + \frac{1}{4}y &= 4 \\
   2x + \frac{3}{2}y &= \frac{35}{3}
   \end{align*}
   \]

18. a) 120 people attended a movie. Tickets for a matinee showing were $6 each and tickets for an evening showing were $10 each. If the total amount of money received from ticket sales was $1020, how many matinee tickets were sold?

   b) 500 people attended a football game. Tickets for students cost $4 each and all other tickets cost $6 each. If the total amount of money raised from ticket sales was $2640, how many student tickets were sold?

19. Solve the system of equations.
   a) \[
   \begin{align*}
   2x + y - 3z &= -19 \\
   -x - y + 2z &= 12 \\
   5x + 2y - 4z &= -30
   \end{align*}
   \]
   b) \[
   \begin{align*}
   x - 3y + 2z &= -2 \\
   3x + 4y - z &= 9 \\
   -2x + y + z &= -11
   \end{align*}
   \]

20. Solve the word problem by writing 3 equations and then solving algebraically.
   a) Three orders were placed at a Thai restaurant. 2 spring rolls, 1 pad thai, and 3 bubble teas cost $16. 1 spring roll, 2 pad thais, and 4 bubble teas cost $23. 3 spring rolls, 4 pad thais, and 2 bubble teas cost $29. Find the cost of each individual item.

   b) Three orders were placed at an Indian restaurant. 1 chicken tandoori, 2 lamb curries, and 1 mango lassi cost $25. 2 chicken tandooris, 1 lamb curry, and 3 mango lassis cost $32. 2 chicken tandooris, 3 lamb curries, and 4 mango lassis cost $49. Find the cost of each individual item.