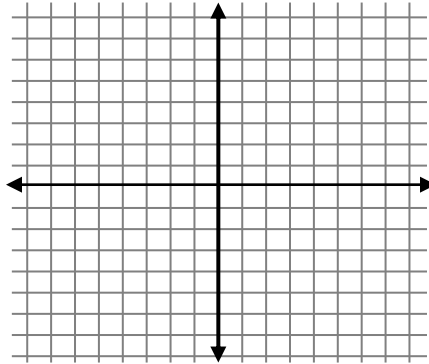1. Solve by graphing: $\begin{cases} x - y = -6 \\ y = -\frac{3}{2}x + 1 \end{cases}$

Solution _____

Solve the system using **substitution**:

2. $\begin{cases} 4x + 2y = 6 \\ x = y - 3 \end{cases}$

Solve the system using **elimination**:

3. $\begin{cases} 2x + 6y = -2 \\ 5x - 3y = 31 \end{cases}$

Solve each system:

4. $\begin{cases} y = x - 4 \\ y = 2x - 7 \end{cases}$

5. $\begin{cases} 2x - 3y = -11 \\ 4x + 7y = 43 \end{cases}$

6. $\begin{cases} y = -\frac{1}{4}x + 1 \\ 2x - y = -10 \end{cases}$

7. $\begin{cases} 8x - 2y = 4 \\ y = 4x - 2 \end{cases}$

Solve each problem by <u>writing a system of equations</u> and then solving the system.

8. You start on step 47 and attempt to climb 2 steps at a time. Your friend is on step 122 and attempts to jump down 3 steps at a time. After how many attempts will you and your friend be on the same step? On what step will you are your friend be on at the same time?

9. You have $5.45 in pennies and nickels. The number of nickels is 7 more than the number of pennies. How many of each coin do you have?

10. Dark chocolate cookies cost $4 each and milk chocolate cookies cost $2.75 each. Cookie Monster bought 430 cookies and paid $1,570. How many milk chocolate cookies did Cookie Monster buy?

11. Emily can draw 4 fighter jets and 2 stealth bombers in an hour and 8 minutes. She can draw 2 fighter jets and 3 stealth bombers in one hour and 6 minutes. How long does it take Emily to draw each jet?

12. Given the inequality $y > 5x - 7$

   Determine if each of the following points is a solution to the inequality. (yes or no)

   a. (2, 4) _____   b. (–3, –24) _____   c. (1, –1) _____

Graph and shade the solution to each inequality or system of inequalities:
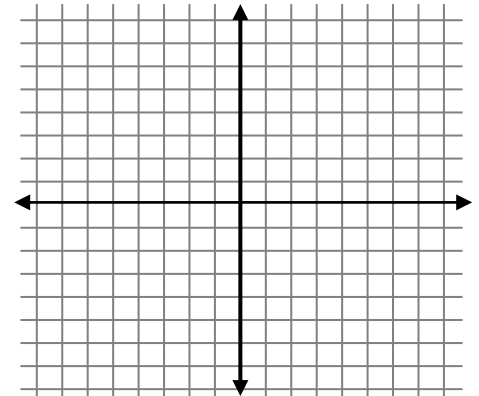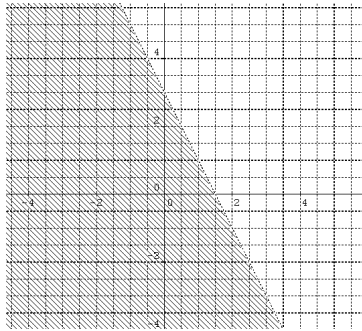
13. $y \leq -2x + 3$
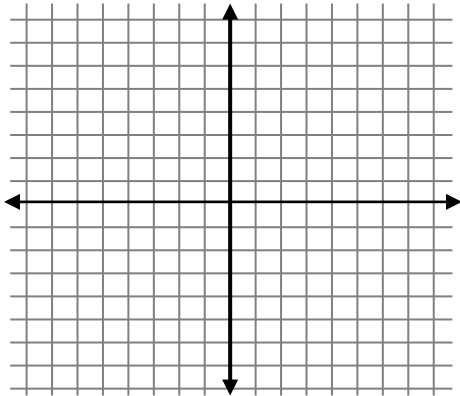
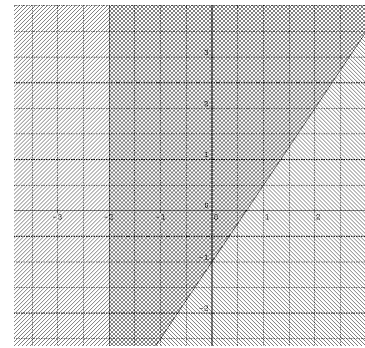14. $\begin{cases} y \geq 3x - 2 \\ 6x + 3y \leq 12 \end{cases}$
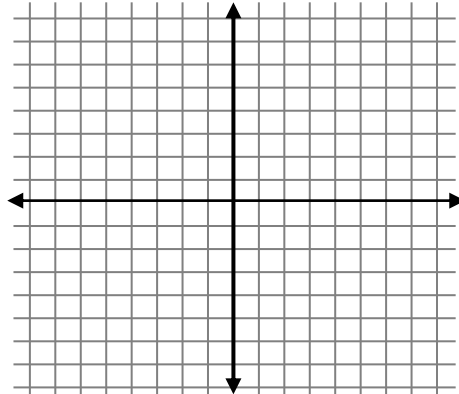
15. $\begin{cases} x + y \leq 7 \\ y \leq 2x + 1 \\ y > 1 \end{cases}$

16. Write an inequality for the graph.

17. Write the system of inequalities shown in the graph.

18. A coffee house has a seating capacity of 150. Latte seats sell for $8.50 and Frappuccino seats sell for $2.50. The coffee house must bring in at least $287.50 to remain profitable.
    a. Write a system of inequalities for the number of tickets the theater must sell to make a profit.

    b. If the coffee house sells 15 latte seats, what are all the possibilities of Frappuccino seats that can be sold to make a profit?

19. Write an explicit formula and find the 54th term. 6, 15, 24, 33, …

20. Solve: $|2x + 3| \leq 15$