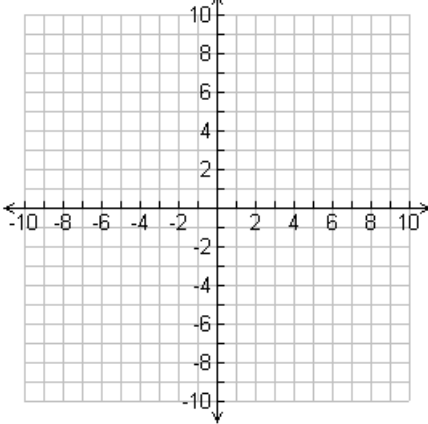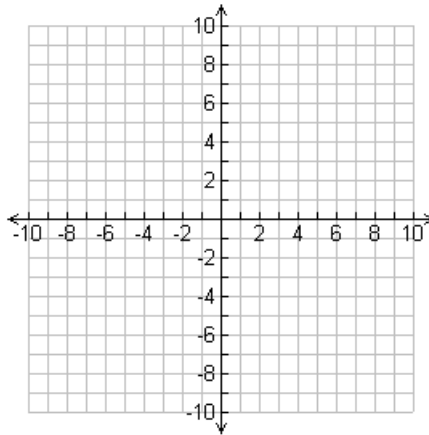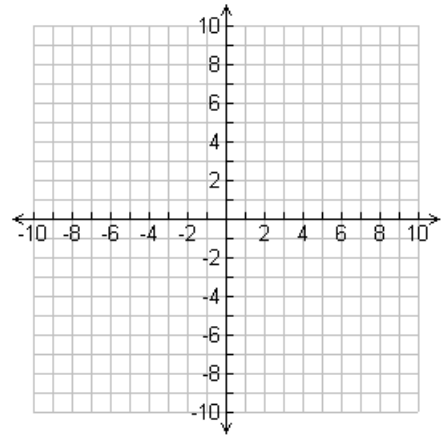**Solving Systems Review**

Solve the system by graphing.

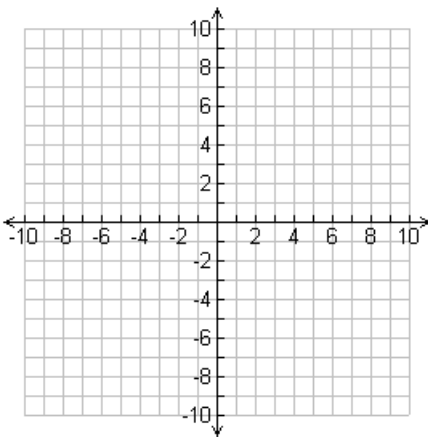1) $\begin{cases} y + 1 = \frac{1}{2}x \\ y = -\frac{2}{3}x + 6 \end{cases}$
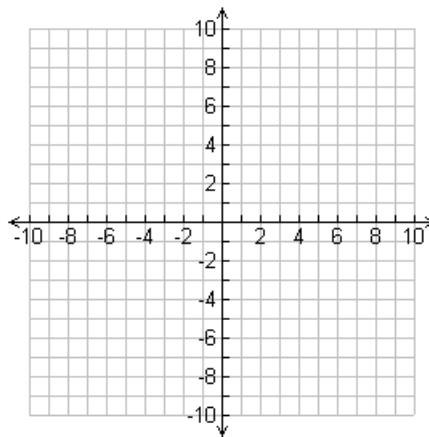
2) $\begin{cases} 2y + 4 = 4x \\ y = 3x - 7 \end{cases}$

3) $\begin{cases} -x = 5 - y \\ y = -\frac{1}{3}x - 7 \end{cases}$

4) $\begin{cases} 2x - 3y \leq 12 \\ x + 5y \leq 20 \end{cases}$

5) $\begin{cases} 3x + 2y \geq -2 \\ x + 2y < 2 \end{cases}$

6) Ray has $20 in his bank account and deposits $60 per month. Will has $560 in his bank account but withdraws $30 per month.
a) Write a system of equations.
b) Graph them and find the intersection.
c) Explain what the numbers in your solution represent.
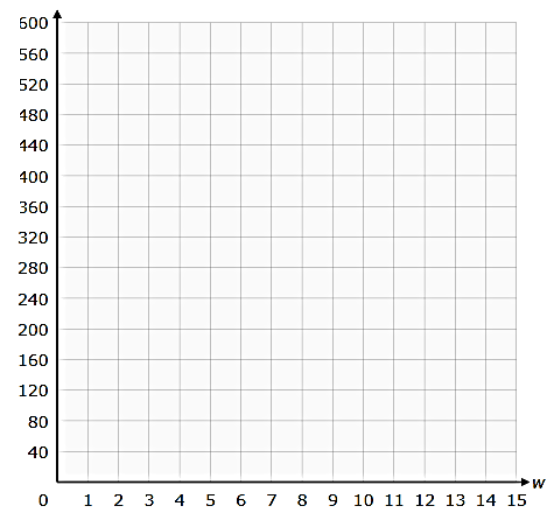
7) Choose two problems from #1 – 6, then check your solution by substituting the numbers back into both original equations.

Solve by substitution. Don't forget to find <u>both</u> x and y!!!

8) $\begin{cases} y = -x + 10 \\ y = 6x + 59 \end{cases}$

9) $\begin{cases} -3x + 5y = 0 \\ 3y = 3x - 18 \end{cases}$

10) $\begin{cases} 2x + y = 1 \\ y + 2x = 5 \end{cases}$

11) There are 100 members in the US Senate. Currently, there are four times as many men as women. Write a system of equations, solve it, and describe what the numbers in your solution represent.

Solve by elimination. Don't forget to find <u>both</u> x and y!!!

12) $\begin{cases} x + 4y = 9 \\ 4y = 19 - 3x \end{cases}$

13) $\begin{cases} 2x + 6y = 22 \\ 3x - 4y = 7 \end{cases}$

14) Check your answer for one of the problems from #12 -13 by plugging the numbers into **both** original equations.

15) Farmer Ben has 22 animals – all are either ducks or cows. Each cow has 4 legs, each duck has 2 legs, and there are 56 legs all together. Write and solve a system to find out how many of each type of animal Farmer Ben has.

<u>Solve by Method of Your Choice:</u>

16) $\begin{cases} 6x + 4y = 8 \\ y + 2x = 0 \end{cases}$

17) $\begin{cases} 4x = 20y \\ -2x + 20y = -10 \end{cases}$

18) $\begin{cases} x + 2y = 2 \\ y = x + 4 \end{cases}$