序　連立 1 次方程式

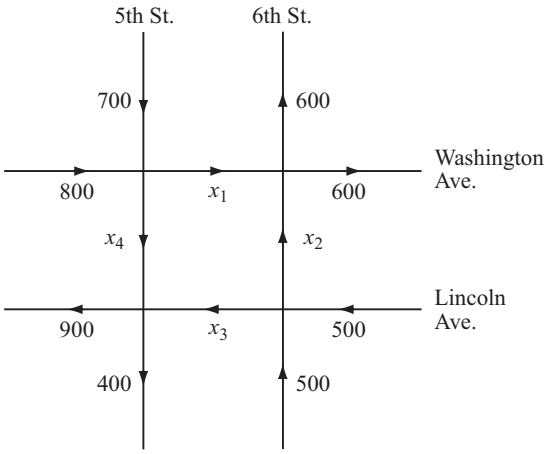
1 鶴と亀が合せて 6 匹いる．足の合計が 20 本であった．鶴と亀はそれぞれ何匹いるか.

2 50 円切手と 80 円切手を合計 14 枚買って 1000 円ちょうどを支払った． 50 円切手と 80 円切手をそれぞれ何枚買ったか.

3 次の各々の連立一次方程式を消去法で解け.

a) $\begin{cases} 4x - 7y = 3 \\ 3x - 5y = 2 \end{cases}$　　b) $\begin{cases} 4x + 7y = 3 \\ 3x - 5y = 2 \end{cases}$

4 *Traffic flow.* The rush-hour traffic flow for a network of four one-way streets in a city is shown in the figure. The numbers next to each street indicate the number of vehicles per hour that enter and leave the network on that street. The variable x_1, x_2, x_3, and x_4 represent the flow of traffic between the four intersections in the network.



a) For a smooth traffic flow, the number of vehicles entering each intersection should always equal the number leaving. For example, since 1500 vehicles enter the intersection of 5th Street and Washington Avenue each hour and $x_1 + x_4$ vehicles leave this intersection, wee that $x_1 + x_4 = 1500$. Find the equations determined by the traffic flow at each of the other three intersections.

b) Find the solution to the system in a).

c) What is the maximum number of vehicles that can travel from Washington Avenue to Lincoln Avenue on 5th Street? What is the minimum number?

d) If traffic lights are adjusted so that 1000 vehicles per hour travel from Washington Avenue to Lincoln Avenue on 5th Stree, determine the flow around the rest of the network.

5 次の各々の連立一次方程式を消去法で解け.

a) $\begin{cases} 2x - 2y + 3z = 1 \\ 3x + 2y + z = 2 \\ x + 4y - 2z = 3 \end{cases}$　　b) $\begin{cases} 2x - 2y + 3z = 1 \\ 3x + 2y + z = 2 \\ x + 4y - 2z = 1 \end{cases}$