

4.4 The solutions of a system of simultaneous linear equations with two unknowns can be solved easily using Cramer's rule.

Assume that a system of equations is given as

$$ax + by = c \quad \text{and} \\ ex + ey = f$$

Then Cramer's rule states that if there is a solution (i.e. $a*e - b*d \neq 0$),

$$x = \frac{c*e - f*b}{a*e - d*b} \quad \text{and} \quad x = \frac{a*f - d*c}{a*e - d*b}$$

Write a programs which accepts the six input coefficients a, b, c, d, e and f and determines the solutions for x and y . If $a*e - b*d = 0$, print a message "The solutions are not unique or there exist no solution."

Sample running :

Enter the values for $a, b, c, d, e,$ and f .

Click the **Find Roots** command button.

Enter another set of values for the six coefficients.

Solutions for simultaneous linear equations

First equation

a

b

c

Second equation

d

e

f

This program finds the solution for the simultaneous linear equations : $ax + by = c$ and $dx + ey = f$.
Please enter the six values (a, b, c, d, e and f):

Click the **Find Roots** button.

Solutions for simultaneous linear equations

First equation

a

b

c

Second equation

d

e

f

This program finds the solution for the simultaneous linear equations : $ax + by = c$ and $dx + ey = f$.
Please enter the six values (a, b, c, d, e and f):

For the equations :
 $2.00 x + 3.00 y = 3.00$
 $4.00 x + 6.00 y = 5.00$

The solutions are not unique or there exist no solution.

Try other values.
Click Exit button to leave.