

Technology Activity

(Use with Lesson 8-2)

Solving Systems of Equations

You can use the symbolic manipulation features of a TI-92 to solve a system of equations by the method of substitution.

Example

Use substitution to solve the system of equations.

$$3x + 9y = -4$$

$$-2x + \frac{1}{5}y = 3$$

Enter:  **HOME** **CLEAR** **CLEAR**

Display the home screen and clear the entry line.

F2 1
 $3x + 9y = (-) 4 , x)$ **ENTER**

Select the solve(command.

Solve the first equation for x.

F2 1
 $(-) 2x + y \div 5 = 3 , y)$

Select the solve(command.

Enter the second equation.

2nd **K** **π** **ENTER** **ENTER**

Substitute the expression for x in the second equation and solve for y.

The display shows that $y = 5/93$.

Enter: **π** **π** **π** **ENTER**

Highlight and paste the expression for x on the entry line.

2nd **K** **π** **ENTER** **ENTER**

Substitute the value for y in the first equation and solve for x.

The display shows that $x = -139/93$. The solution of this system is $\left(-\frac{139}{93}, \frac{5}{93}\right)$.

Use this method with a TI-92 to solve each system of equations.

1. $12x - 5y = -1$

$$2x + 3y = 5$$

2. $-x - 7y = 4$

$$\frac{1}{3}x + 2y = -4$$

3. $32x - 16y = 5$

$$3x + 4y = -21$$

4. $9x + y = 17$

$$-2x + 23y = 8$$