Algebra I

Notes Section 6.4

Solve Linear Systems by Multiplying First

Big Ideas

1. How to solve a system of equations by multiplying one or both equations of the linear system by a constant and then add or subtract the equations to eliminate a variable.

STEPS

1) Find the least common multiple of either the x or y coefficients, then multiply one or both equations to get opposites.
2) Add the equations together . . . find opposites, if needed!
3) Solve for either variable.
4) Substitute this value into the first equation and then solve again.
5) Write your answers as an ordered pair.

EXAMPLE 1 Solve.

a) $6x + 5y = 19$
$2x + 3y = 5$

b) $2x + y = -9$
$4x + 11y = 9$

EXAMPLE 2 Solve.

a) $4x + 5y = 35$
$2y = 3x - 9$

b) $2x - 3y = 6$
$4y = -7x - 8$

c) $3x - 7y = 5$
$9y = 5x + 5$

EXAMPLE 3 Darlene is making a quilt hat has alternating stripes of regular quilting fabric and sateen fabric. She spends $76 on a total of 16 yards of the two fabrics. Write a system of equations and solve for the number of yards of each fabric Darlene purchased.