Algebra 1 6.2

Solve systems of equations using substitution method

Solve problems using substitution of equations

solve

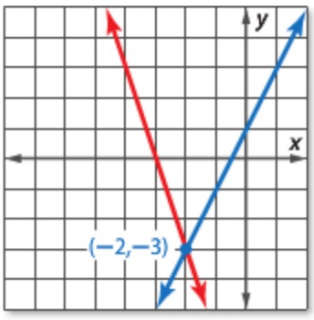
solve by graphing

substitution

substitution method

activity: cut & paste

whiteboards



$-3 = 2 \cdot -2 + 1$

$-3 = -4 + 1$

Example 1 Solve a System by Substitution

Use substitution to solve the system of equations.

$y = 2x + 1$ ← **Step 1** The first equation is already solved for y.

$3x + y = -9$

$y = 2 \cdot -2 + 1$

$= -4 + 1$

$3 \cdot -2 + -3 = -9$

$-6 + -3 = -9$

$3x + 2x + 1 = -9$

$5x + 1 = -9$

$-1 \quad -1$

$\frac{5x}{5} = \frac{-10}{5}$

You are the coach...
Who is on the sub list?

☺ (-2, -3) ☺

KeyConcept Solving by Substitution

Step 1 When necessary, solve at least one equation for one variable.

Step 2 Substitute the resulting expression from Step 1 into the other equation to replace the variable. Then solve the equation.

Step 3 Substitute the value from Step 2 into either equation, and solve for the other variable. Write the solution as an ordered pair.

① $1+3\cdot 2=7$ $x=$ $2\cdot 1-4\cdot 2=-6$

$y=$ $2-8=-6$

$x+3y=7$ $\quad 2x-4y=-6$

$-3y \quad -3y$

$x=(-3y+7)$

$2(-3y+7)-4y=-6$

$-6y+14-4y=-6$

$-10y+14=-6$

$-14 \quad -14$

$-10y=-20$

$\frac{-10y}{-10}=\frac{-20}{-10}$

$y=2$

$x=-3\cdot 2+7$

$x=-6+7$

$=1$

$y=$

$(1,2)$

☺ (1,2) ☺

GuidedPractice

1A. $y = 4x - 6$
$5x + 3y = -1$

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1B. $2x + 5y = -1$
$y = 3x + 10$

How is this problem different?

Example 2 Solve and then Substitute

Use substitution to solve the system of equations.

$x + 2y = 6$

$3x - 4y = 28$

$x = -2y + 6$

$3(-2y+6) - 4y = 28$

p. 347 1-6 all 8-13 all

GuidedPractice

2A. $4x + 5y = 11$
$y - 3x = -13$

2B. $x - 3y = -9$
$5x - 2y = 7$