SUBS .UTION EXPLORE &ELABORATE & EXPLAIN

Janet solved this problem using substitution.

$y = 2x + 1$
$2x + y = 9$

WHY? One equation is solved for y already.

$2x + (2x + 1) = 9$

$4x + 1 = 9$

$4x = 8$

$X = 2$

$Y = 2(2) + 1$

$Y = 5$

(2, 5)

Explain the "process " of substitution.

1. Solve 1 equation for a single variable.
2. substitute in the 2nd equation.
3. solve for variable
4. plug Back in to solve for second variable.

Example:

$X = 8 - 3y$
$4x - 3y = 2$

$4(8 - 3y) - 3y = 2$

$32 - 12y - 3y = 2$

$32 - 15y = 2$
$-32 \quad -32$

$\frac{-15y}{-15} = \frac{-30}{-15}$

$y = 2$

$x = 8 - 3(2)$
$8 - 6$
$x = 2$

(2, 2)

ELIMINATION EXPLORE &ELABORATE & EXPLAIN

Lily worked this problem using elimination.

$6x - 4y = 14$
$3x - 4y = -1$

WHY? Lined up x's w/ x's, y's w/ y's

$6x - 4y = 14$
$-1(3x - 4y = -1)$

$6x - 4y = 14$
$-3x + 4y = -1$
$3x = 15$
$X = 5$

$6(5) - 4y = 14$
$30 - 4y = 14$
$-4y = -16$
$Y = 4$

(5, 4)

Explain the "process " of elimination.

1. multiply one equation so that one variable will cancel when you combine equations
2. solve for single variable
3. then plug Back in one equation to solve for second variable

Example:

$6x + 5y = 19$
$-3(2x + 3y = 5)$
$-6x - 9y = -15$

$-4y = 4$
$\frac{-4y}{-4} = \frac{4}{-4}$
$y = -1$

$2x + 3(-1) = 5$
$+3 \quad +3$
$\frac{2x}{2} = \frac{8}{2}$
$x = 4$

(4, -1)