

Goal: I will be able to **determine solutions of systems by substitution.**

Tool Bag
Formulas, equations,
Vocabulary, etc

Here's How... Notes & Examples

Example

$y = 10$

$y = 2x + 6$

$10 = 2x + 6$

$10 - 6 = 2x + 6 - 6$

$4 = 2x$

$2 = x$

$(2, 10)$

Substituted 10 in for y

the same

Example 2

$y = 4x$

$3x + 2y = 33$

$3x + 2(4x) = 33$

$3x + 8x = 33$

$11x = 33$

$x = 3$

$y = 4(3)$

$y = 12$

$(3, 12)$

Check

$(3, 12)$

$y = 4x$

$12 = 4(3)$

$12 = 12 \checkmark$

$3x + 2y = 33$

$3(3) + 2(12) = 33$

$9 + 24 = 33$

$33 = 33 \checkmark$

$(3, 12)$ is the solution

Try

$y = -2x$

$3x + y = 8$

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

$x = 8$

$y = -16$

Check

$y = -2x$

$-16 = -2(8)$

$-16 = -16 \checkmark$

$3x + y = 8$

$3(8) + (-16) = 8$

$24 + (-16) = 8$

$8 = 8 \checkmark$

$(8, -16)$ is the solution

Example 3

Together, Steph & KD made 482 3's. Steph made 56 more than KD. How many 3's did each make?

$S + K = 482$

$S = K + 56$

$(K + 56) + K = 482$

$2K + 56 = 482$

$2K + 56 - 56 = 482 - 56$

$2K = 426$

$K = 213$

$S = K + 56$

$S = 213 + 56$

$S = 269$

Check

$K + S = 482$

$213 + 269 = 482$

$482 = 482 \checkmark$

$S = K + 56$

$269 = 213 + 56$

$269 = 269 \checkmark$

$2x - y = 7$

$x = y + 5$

$2(y + 5) - y = 7$