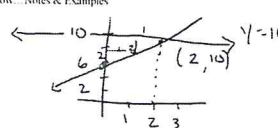# Digits 6-4
Solving Systems by Substitution

①

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

Tool Bag
Formulas, equations,
Vocabulary, etc

Here's How... Notes & Examples

Example ① $y = 10$
② $y = 2x + 6$

Substitute
$y = 10$ into
equation 2

$y = 2x + 6$
$10 = 2x + 6$
$10 - 6 = 2x + 6 - 6$
$4 = 2x$
$2 = x$

(x, y)
$(2, 10)$

②

Example ① $y = 4x$
② $3x + 2y = 33$

Substitute
$y = 4x$ into
equation 2

$3x + 2y = 33$
$3x + 2(4x) = 33$
$3x + 8x = 33$
$11x = 33$
$x = 3$

Plug $x = 3$
into equation 1

$y = 4x$
$y = 4(3)$
$y = 12$ $(3, 12)$

③

Check $(3, 12)$

$y = 4x$
$12 = 4(3)$
$12 = 12$ ✓

$3x + 2y = 33$
$3(3) + 2(12) = 33$
$9 + 24 = 33$
$33 = 33$ ✓

④

Try $y = -2x$
$3x + y = 8$

Substitute
$y = -2x$ into
equation

Solve for y

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

$y = -2x$
$y = -2(8)$
$y = -16$

$(8, -16)$

⑤

Example

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

$C = $ Steph's 3s $k = $ KD's 3s

$c + k = 482$
$c = k + 56$

Substitute
C into the
equation.

$c + k = 482$
$(k + 56) + k = 482$
$2k + 56 = 482$
$2k + 56 - 56 = 482 - 56$
$2k = 426$
$k = 213$

$c = k + 56$
$c = 213 + 56$
$c = 269$

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