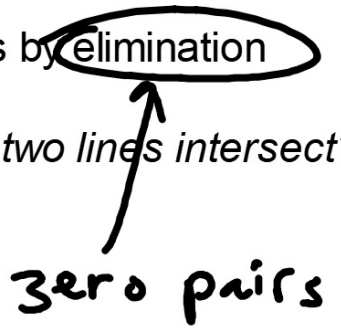
Algebra 1 6.3

Solve systems of equations by elimination

system of equations

solve (x,y) *Where do the two lines intersect?*



→ substitution method
zero pair
additive inverse
addition property of equality
whiteboards

Quiz 6.1-6.2

Make zero pairs

Example 1 Elimination Using Addition

Use elimination to solve the system of equations.

$$4x + 6y = 32$$
$$3x - 6y = 3$$

$4 \cdot 5 + 6y = 32$

$20 + 6y = 32$

$-20 \quad -20$

$\frac{6y}{6} = \frac{12}{6}$

$\frac{7x}{7} = \frac{35}{7}$

$x = 5$

$(5, 2)$

$3 \cdot 5 - 6 \cdot 2 = 3$

$15 - 12 = 3$

Are they equal?
So...OK to add same thing to both sides...

GuidedPractice

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

1B. $4y + 3x = 22$
$3x - 4y = 14$

How can I make a zero pair?

(6, 1)

Define your variables: x = first number y= second number

Example 2 Write and Solve a System of Equations

Negative three times one number plus five times another number is −11. Three times the first number plus seven times the other number is −1. Find the numbers.

$$-3x + 5y = -11$$
$$3x + 7y = -1$$

How can I make a zero pair?

GuidedPractice

3. Solve the system of equations.

$$8b + 3c = 11$$
$$8b + 7c = 7$$

b, c

(1.75, -1)

$$8 \cdot b + 7(-1) = 7$$
$$8b + -7 = 7$$
$$+7 \quad +7$$
$$\frac{8b}{8} = \frac{14}{8}$$

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

ordered pairs
(b, c)

rearrange first

(r, t)

Standardized Test Example 3

Solve the system of equations.

$$2t + 5r = 6$$
$$9r + 2t = 22$$

$r = 4$ $\quad 2 \cdot 4 + 5r = 6$

1. $5m - p = 7$
$7m - p = 11$

Goal: make zero pair

2. $8x + 5y = 38$
$-8x + 2y = 4$