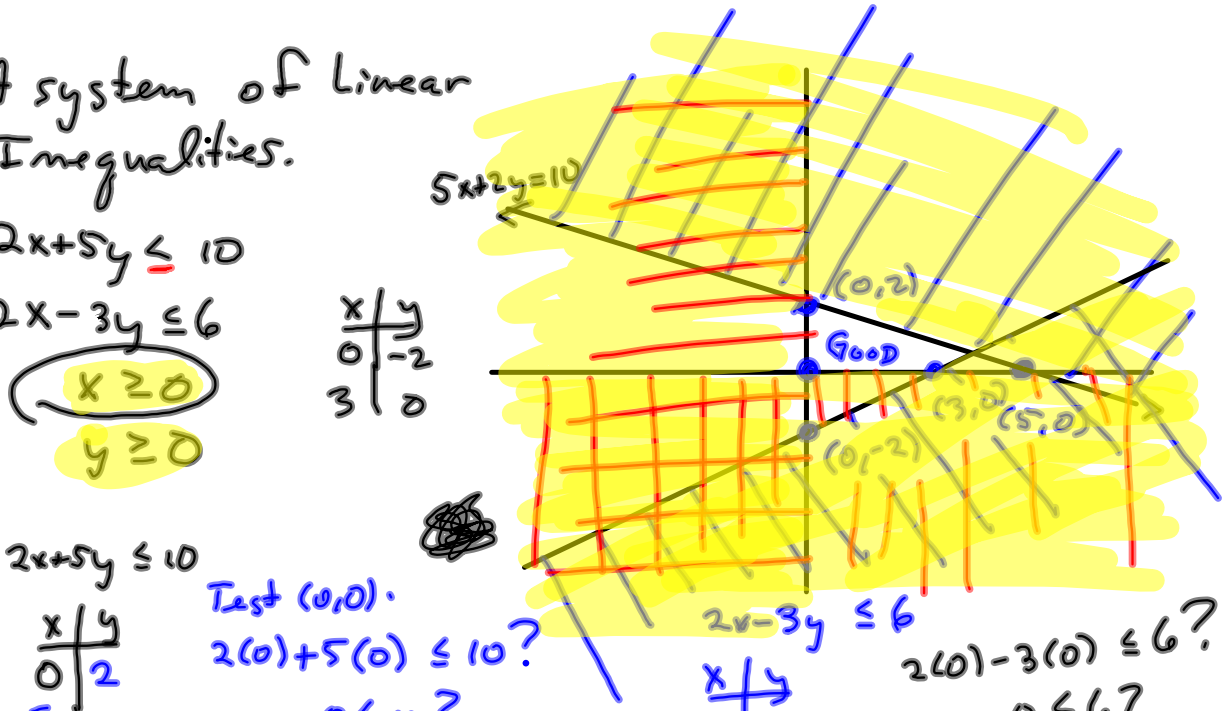
A system of Linear Inequalities.

$2x+5y \leq 10$

$2x-3y \leq 6$

$x \geq 0$

$y \geq 0$



x	y
0	-2
3	0

$2x+5y \leq 10$

x	y
0	2
5	0

Test (0,0).

$2(0)+5(0) \leq 10$?

$0 \leq 10$?

Yes. (0,0) Good!

x	y
0	-2
3	0

$2(0)-3(0) \leq 6$?

$0 \leq 6$?

Yes (0,0) Good.

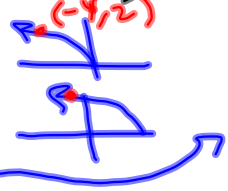
Owie!

Graph $g(x) = -\sqrt{3-x} + 7$ $f(x) = \sqrt{x}$

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

$x = 0, 1, 4$

$f(-x)$	①	H-reflect	$\sqrt{-x}$
$f(x \pm c)$	②	H-shift	$\sqrt{-(x-3)}$
$af(x)$	③	V-reflect	$-\sqrt{-(x-3)}$
$f(x) \pm c$	④	V-shift	$-\sqrt{-(x-3)} + 7 = g(x)$



① $\sqrt{x} = f(x)$

② $\sqrt{-x} = f(-x)$ $(x,y) \to (-x,y)$

③ $\sqrt{-(x-3)} = f(-(x-3))$ $(x,y) \to (x+3, y)$

④ $-\sqrt{-(x-3)} = -f(-(x-3))$ $(x,y) \to (x,-y)$

⑤ $-\sqrt{-(x-3)} + 7 = -f(-(x-3)) + 7$ $(x,y) \to (x, y+7)$

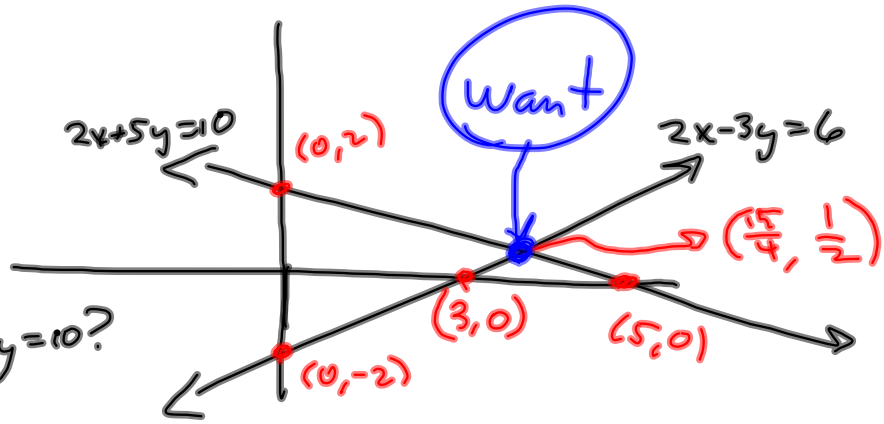
→ 5 graphs, showing each move.

Systems of Linear Equations

Solve

$2x+5y = 10$

$2x-3y = 6$



what's the slope of $2x+5y=10$?

$-\frac{2}{5}$

$5y = -2x + 10$

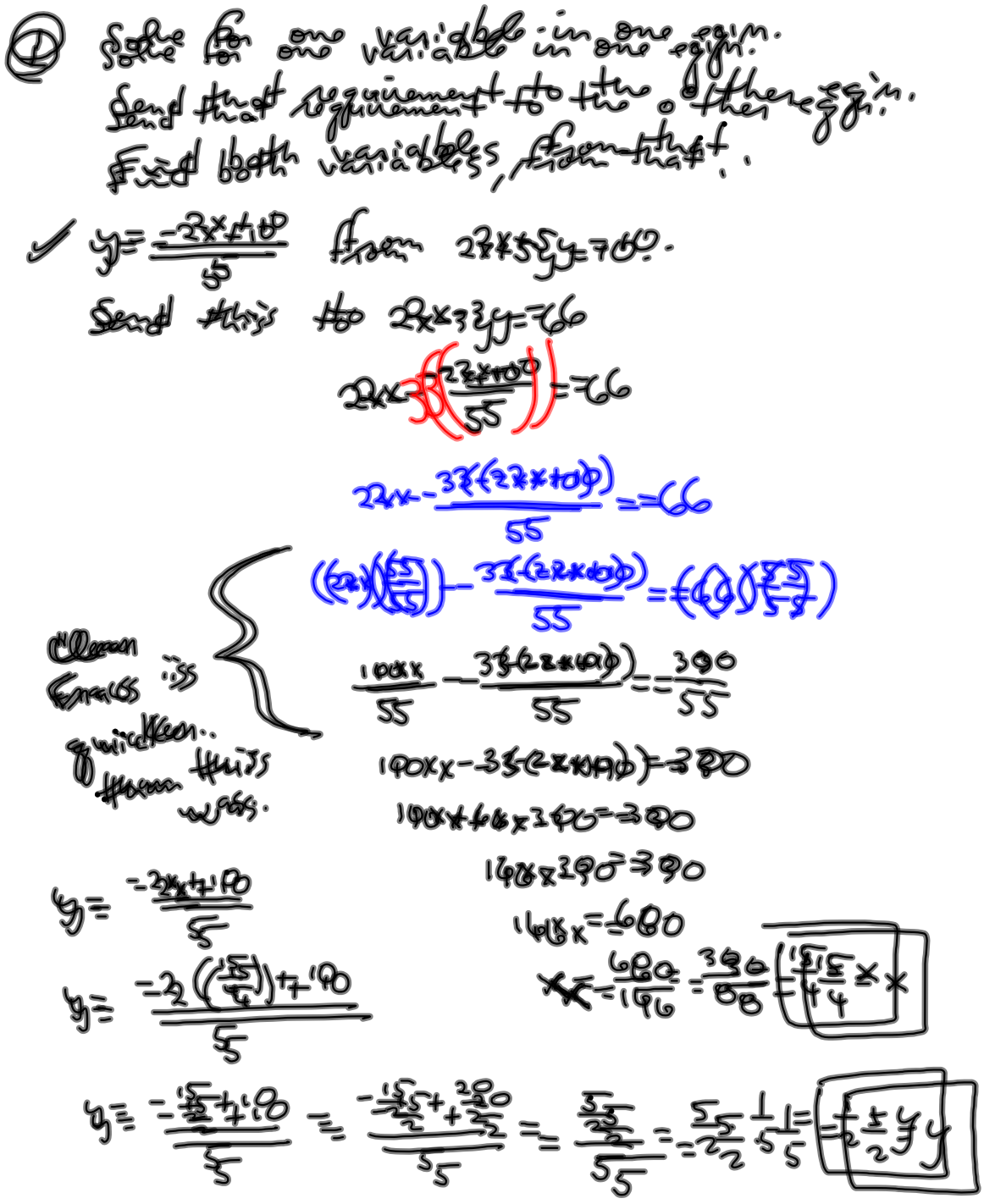
$y = \frac{-2x+10}{5}$

$y = -\frac{2}{5}x + \frac{10}{5}$

$m = -\frac{2}{5}$

Solution Methods:

1. Substitution
2. Elimination



Feb 20-9:56 AM

Substitution is NICE when you start with a variable by itself (or with a coefficient of '1').

$y = 2x+3$

$x-2y=7$

Nice. y is already alone.

$x-2(2x+3)=7$

$x-4x-6=7$

$-3x-6=7$

$-3x=13$

$x=-\frac{13}{3}$

$y=2x+3$

$y=2\left(-\frac{13}{3}\right)+3$

$=-\frac{26}{3}+\frac{9}{3}$

$=-\frac{17}{3}=y$

Check:

$x-2y=7$

$-\frac{13}{3}-2\left(-\frac{17}{3}\right)=7$

$\frac{-13+34}{3}=\frac{21}{3}=7$ ✓

These solutions should be reported as ordered pairs: $\left(-\frac{13}{3},-\frac{17}{3}\right)$ ← A pt. in the plane.

Solution Set: $\left\{\left(-\frac{13}{3},-\frac{17}{3}\right)\right\}$

You should be starting problems in §4.1
C4 rest of week.

Read Ahead – Copy Down Highlights,
Ask Questions

Feb 20-9:54 AM