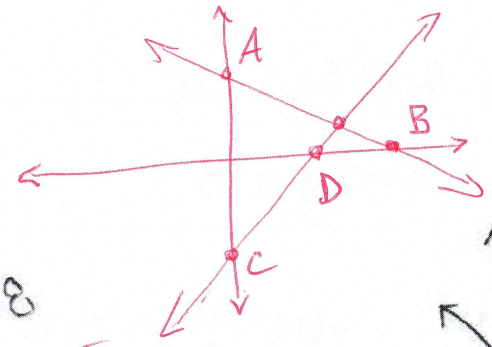
MAT 1570

44.5/70

1A) $2x+5y=20$
$3x-2y=18$



$2x+5y=20$

~~$x+y=4$~~

x	y
0	4
~~10~~	0

(0,4) A

~→ (10,0) B

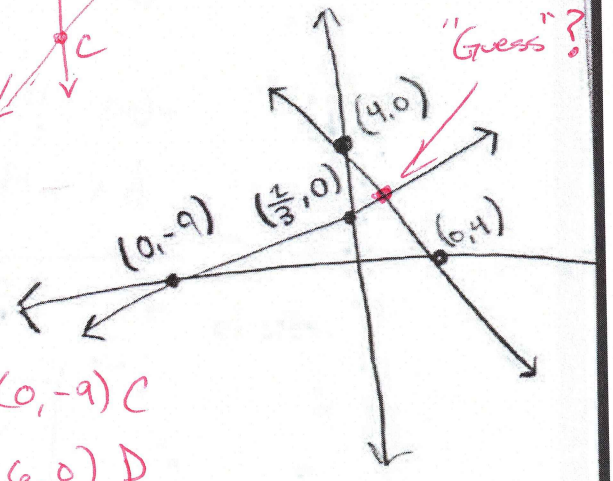
$3x-2y=18$

~~$x+y=-9$~~

x	y
0	-9
~~6~~ 2/3	0

→ (0,-9) C

(6,0) D



+7

1B)

$3x-2y=18$

$-2y=-3x-18$ ↙ Sign change ok, but no "-2" change on this side?

"-2" goes away on this side → $y=3x+18$

$2x+5y=2x+5(3x+18)=20$

$2x+15x+90=17x+90=20$

Should come out to $y=\frac{24}{19}$ $x=\frac{130}{19}$

$17x=110$

$x=\frac{110}{17}=6=x$

$y=3(6)+18=36$

~~36=y~~

+6

MAT 1340

1C. $2x+5y=20$

$3x-2y=18$

$-3\ E1 \quad -6x-15y=-60$

$2\ E2 \quad 6x+4y=36$

$-19y=-24$

$$y=+\frac{24}{19}$$

wrong — how?? — right

$$2x+5y=2x+5\left(-\frac{24}{19}\right)=2x+\frac{60}{19}=20$$

$$\frac{2x}{1}\cdot\frac{19}{19}+\frac{60}{19}=\frac{20}{1}\cdot\frac{19}{19}$$

$$\frac{160}{19}=x$$

$2x+5y=20$

$2x+5\left(\frac{24}{19}\right)=20$

$2x=20-\frac{120}{19}$

$2x=\frac{380-120}{19}$

$=\frac{260}{19}$

$$\Rightarrow x=\frac{130}{19}$$

+8

MAT 1340

2. $2x-2y+z=-13$

$3x-5y-z=-21$

$x-2z=7$

$-2x-2y+z=13$

$3x+5y-z=-21$

$-z=-8$

$\boxed{z=8}$

$-3 \quad 2x-2y+z=-13$

$x-2z=7$

$\boxed{z=6}$

+5

3. $7x+17y+27z=30$
$2x+5y+8z=8$
$x+2y+3z=6$

$x+2y+3z=6$
$3x+17y+27z=30$
$2x+5y+8z=8$

$(x+2y+13z=6)$
$3x+17y+27z=30$

$19y+z=36$

$3x+17y+27z=30$
$-2x-5y+25z=28$
$2x+12y-2z=8$

$3y+z=20$

$x+2y+3z=6$
$19y+z=36$
$3y+z=20$

$\rightarrow$

$x+2y+3z=6$
$19y+z=36$
$0=0!$

z is free

$y=-2z-4$

$x=z+14$

+6

3B. $z=0 \rightarrow (x,y,z) = (14,-4,2)$ $2 \neq 0$

$z=1 \rightarrow (x,y,z) = \left(\frac{8(1)+30}{3}, \frac{2-6}{3}, -1\right) = \left(\frac{38}{3}, \frac{4}{3}, 1\right)$

$z=-1 \rightarrow (x,y,z) = \left(\frac{8(-1)+30}{3}, \frac{-2-6}{3}, 1\right) = \left(\frac{22}{3}, \frac{-8}{3}, 1\right)$

+5

4.

$$x+2y+3z=6$$
$$3x+17y+27z=30$$
$$2x+5y+8z=8$$

$\rightarrow x+2y+3y=6$ ok

why? $\rightarrow 3y+z=30$ how?!

how? $\rightarrow 0=8$?

This system is absurd because $0=8$ makes no sense. The problem is similar to problem #3 but #3's second equation equals 8 while this one equals 3.

+7.5