MAT1340 Will Hamilton

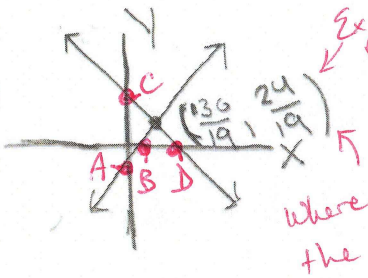
$2x+5y=20$

$3x-2y=18$

x	y	
0	-9	A
6	0	B

x	y	
0	4	C
10	0	D

① a)



Exact part

Where is the estimate?

53/70

b) $2(6+\frac{2}{3}y)+5y=20$

$12+\frac{4}{3}y+5y=20$

$12+\frac{4}{3}y+\frac{15}{3}y=20$

$12+\frac{19}{3}y=8\frac{13}{19}$

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

$x=6+\frac{2}{3}\left(\frac{24}{19}\right)$

$x=\frac{16}{57}+\frac{48}{57}=\boxed{\frac{130}{19}=x}$

+10

$+6.5\ 3x-2y=18$

$3x=18+2y$

$x=6+\frac{2}{3}y$

c) $(+3)\ 2x+5y=20\ (3)$

$(-2)\ 3x-2y=18\ (-2)$

$6x+15y=60$

$-6x+4y=-36$

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

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

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

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

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

$2x=\frac{380}{19}-\frac{120}{19}=\frac{260}{19}$

$2x=\frac{130}{19}\ \frac{1}{2}=$

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

+9

The parentheses are just as important as the numbers, they change the outcome.

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② $2x-2y+z=-13$

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

$x \quad -2z=7$

Not clear where the "(2)" is placed

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

$\hookrightarrow x-2z=7$ $\Rightarrow -2y+5z=-27$

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

(-3) $x-2z=7$ $\Rightarrow -5y+5z=-42$

(-1) $-2y+5z=-27$

$-5y+5z=42$ $\Rightarrow 3y=15$

$\boxed{y=5}$

$-5y+5z=-42$

$x-2z=7$ $\Rightarrow -25+5z=-42$

$x-2x=7$

$5z=17$

$\boxed{z=\frac{17}{5}}$

$x-2\left(\frac{17}{5}\right)=7 \Rightarrow x+\frac{34}{5}=7$

$\boxed{x=\frac{1}{5}}$

+10

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

(-2) $x+2y+3z=6$ $\Rightarrow$ $-2x-4y-6z=-12$
$2x+5y+8z=8$ $\quad\quad$ $2x+5y+8z=8$

(-7) $7x+17y+27z=30$ $\Rightarrow$ $7x+17y+27z=30$
$x+2y+3z=6$ $\quad\quad$ $-7x-14y-21z=-42$
$3y+6z=72$

These don't add up...

$x+2y+3z=6$
$y+2z=-4$
$-7y+6z=-8$
$y=-2z-4$

...so, how?

$y+2z=-4$
$-3y+6z=-12$
$y+2z=-4$
$-y-2z=14$
$0=0$

NO
$30-42=72$?!?

Solution $=\{(-2z-4),(z+14),z\}$

$x+2(-2z-4)+3z=6$
$x-4z-8+3z=6$
$x-z-8=6$
$x=z+14$

OK
what?

+17.5

b) I don't see any work here for part b.

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(4) $7x+17y+27z=30$
$2x+5y+8z=3$
$x+2y+3z=6$

(-7) $7x+17y+27z=30$, $x+2y+3z=6$ $\Rightarrow$ $7x+17y+27z=30$, $-7x-14y-21z=-42$

(-2) $2x+5y+8z=3$, $x+2y+3z=6$ $\Rightarrow$ $2x+5y+8z=3$, $-2x-4y-6z=-2$

$y+2z=-9$

$x+2y+3z=6$
$3y+6z=-12$
$y+2z=-9$

$3y+6z=-12$

(-3) $y+2z=-9$ $\Rightarrow$ $-3y-6z=27$

$0=15$
absurd!

0 does not $=15$ so No solution

+10