* Read Example 1.1(i)

5.5. a) Find $2 \oplus 3$

b) Find -205

c) Find $302 \oplus -204$

* Do 1.1: 6

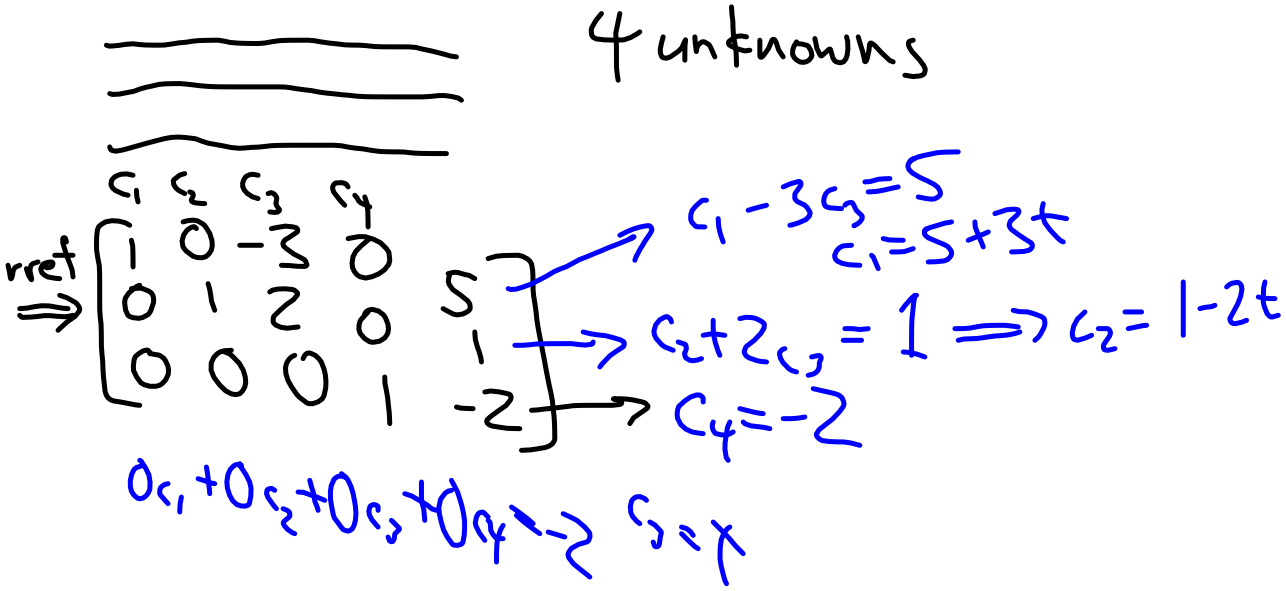
Vector $\vec{u}$, must be $-\vec{u}$ such that $\vec{u}+(-\vec{u})=\vec{0}$

$\vec{0}$ turned out to be 1

$x \cdot \frac{1}{x} = 1$

$\frac{1}{2} \cdot 0 - 4 = (-4)^{\frac{1}{2}}$

$-200 = 0^{-2} = \frac{1}{0^2}$


4 unknowns
c_1 c_2 c_3 c_4
rref
$c_1 - 3c_3 = 5$
$c_1 = 5 + 3t$
$c_2 + 2c_3 = 1 \Rightarrow c_2 = 1 - 2t$
$c_4 = -2$
$0c_1 + 0c_2 + 0c_3 + 0c_4 = 2$

1.3: 7-10

$f(0)=2$

$f(x)=2$

$g(x)=x^2+2$

$h(x)=x+2$

$f(x)=0$ is the zero "vector" for $\mathcal{F}$

$f'' + f = 0$

$f'' = -f$

$f(x) = C_1 \sin x$

$g(x) = C_2 \cos x$

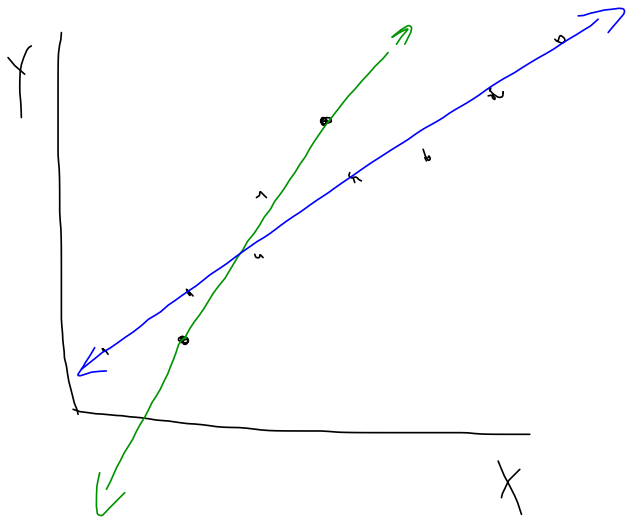
1.2: 3, 4, 5, 7

1.3: 14, 17 (See Example 1.3(c))

Remember!

$(f+g)(x) = f(x) + g(x)$

$(cf)(x) = c[f(x)]$



$y = mx + b$

$b + .69m \approx 1.42$

$b + 5m = 3$

$b + 7m = 0$

$$\begin{bmatrix} 1 & 0 & \# \\ 0 & 1 & \# \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$$ No solution

5.5 a) $2 \oplus 3 = 2 \cdot 3 = 6$

b) $-2 \odot 5 = 5^{-2} = \frac{1}{25}$

c) $3 \odot 2 \oplus -2 \odot 4 = 2 \oplus 4^{-2}$

$= 8 \oplus \frac{1}{16} = \frac{1}{2}$