c) $a \cdot 0 = 0$ $\qquad$ $\underline{\underline{0 + 0 = 0}}$

$$a \cdot (0 + 0) = a \cdot 0 + a \cdot 0$$

$$\| $$

$$a \cdot 0 \qquad\qquad (-a \cdot 0)$$

$$0 = a \cdot 0$$

a) $a + b = a + c \implies b = c$

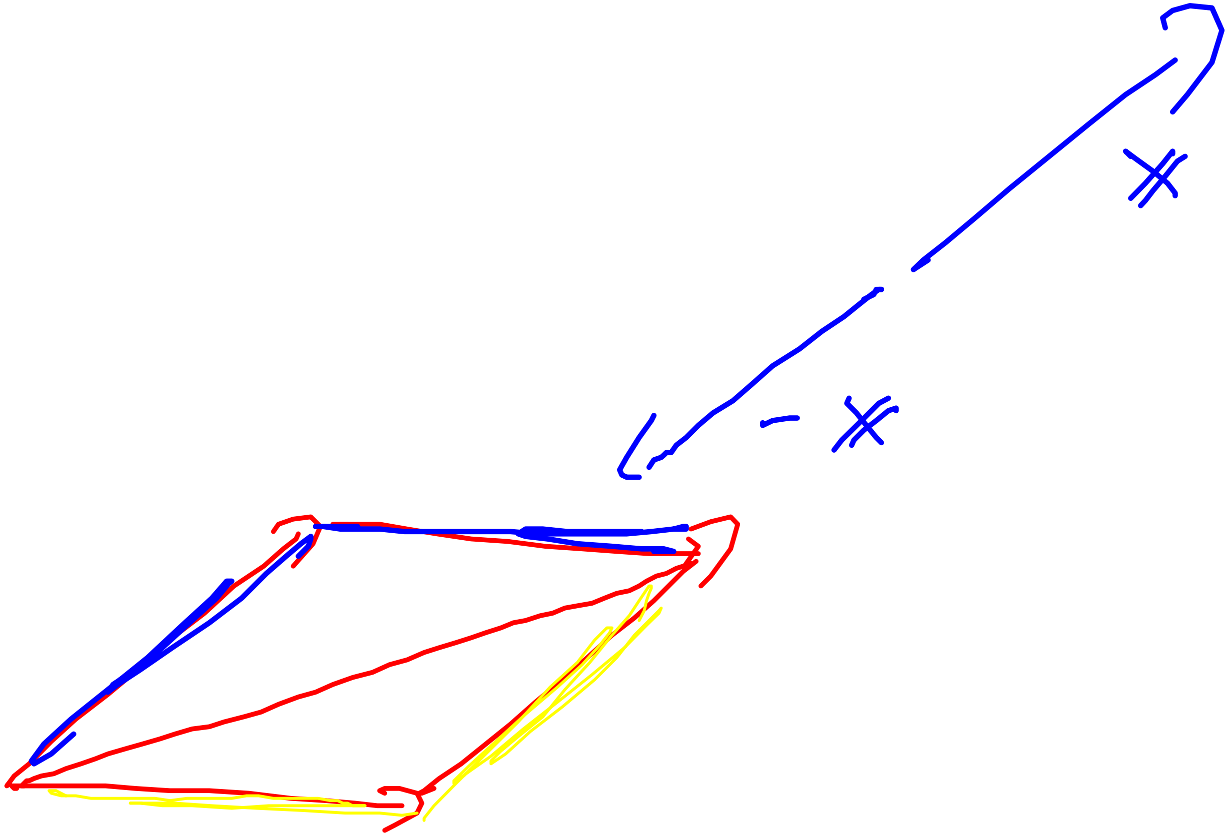
$$\boxed{a + b = a + c}$$

$$a + (-a) = 0 = (-a) + a$$

$$(-a) + (\underline{a + b}) = (-a) + (\underline{a + c})$$

$$(\underbrace{-a + a}_{=\,0}) + b = (\underbrace{-a + a}_{=\,0}) + c$$

$$b = c$$



$\underline{a x = 0} \Rightarrow a = 0 \vee x = 0$

$a = 0$ jó

$a \neq 0 \qquad \exists\, a^{-1} \qquad a^{-1} \cdot a = 1$

$$a^{-1}(a x) = a^{-1} \cdot 0 \overset{(c)}{=} 0$$

$\|$

$\underbrace{(a^{-1} a)}_{1} x = x$

V and $L \supseteq K$

$(\cdot): L \times V \to V$

$(\cdot): K \times V \to V$

$K^n = \{(x_1, \ldots, x_n) : \}$

K^n VP $K^{m \times n}$

$(x_1, \ldots, x_n)$

$(y_1, \ldots, y_n)$

$(r_1, \ldots, r_m)$

$$(x_1 \cdot x_2 \;\; x_n)\begin{pmatrix} y_1 \\ y_2 \\ \vdots \\ y_n \end{pmatrix} =$$

$$x_1 \cdot y_1 + x_2 y_2 + \cdot + x_n y_n = \sum_{i=1}^{n} x_i y_i$$

$$x \cdot y = y^T x^T \quad (y_1 \cdot y_n)\begin{pmatrix} x_1 \\ \\ x_n \end{pmatrix} =$$

$$= \sum y_i \cdot x_i$$

$$\begin{pmatrix} 1 & 2 & 3 \\ 2 & 7 & 8 \end{pmatrix} \begin{pmatrix} 4 \\ 5 \\ 6 \end{pmatrix} = \begin{pmatrix} 4+10+18 \\ 8+35+48 \end{pmatrix}$$

$$\begin{pmatrix} 4 & 5 & 6 \end{pmatrix}$$

$$A \cdot B = \begin{pmatrix} a_i(A) & a_2(B) \end{pmatrix}$$

$$= \sum_{k=1}^{n} \left(\sum_{j=1}^{m} x_j \, b_{jk} \right) y_k = (xB) \cdot y$$

$$\| $$

$$x \begin{pmatrix} 1_1 (B) y \\ \vdots \\ 1_m (B) y \end{pmatrix} = x \begin{pmatrix} \sum_{k=1}^{n} b_{1k} y_k \\ \vdots \\ \sum_{k=1}^{n} b_{mk} y_k \end{pmatrix}$$

$$= \sum_{j=1}^{m} x_j \sum_{k=1}^{n} b_{jk} y_k =$$

$$\underbrace{1+1+\dots+1}_{n} = n \cdot 1$$

$$\{0, 1, 2\}$$

$$1+1+1 = 3 = \underline{\underline{0}}$$