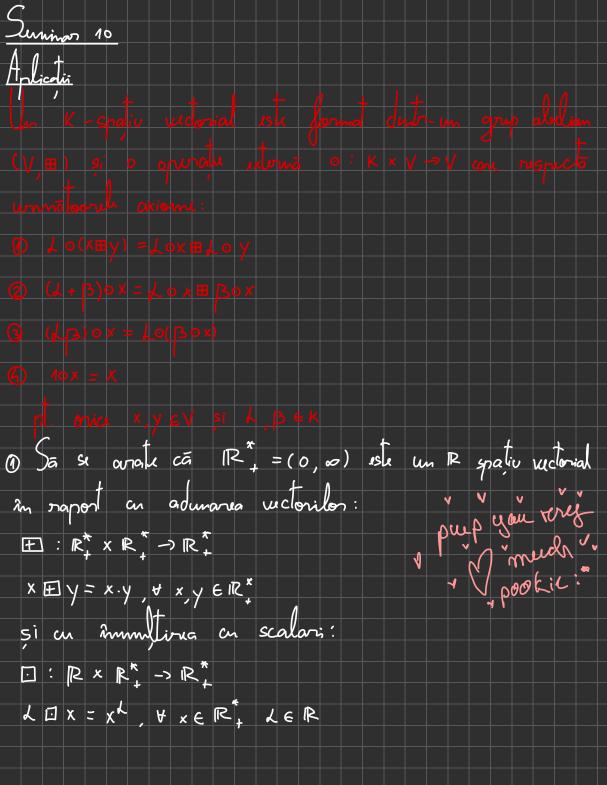
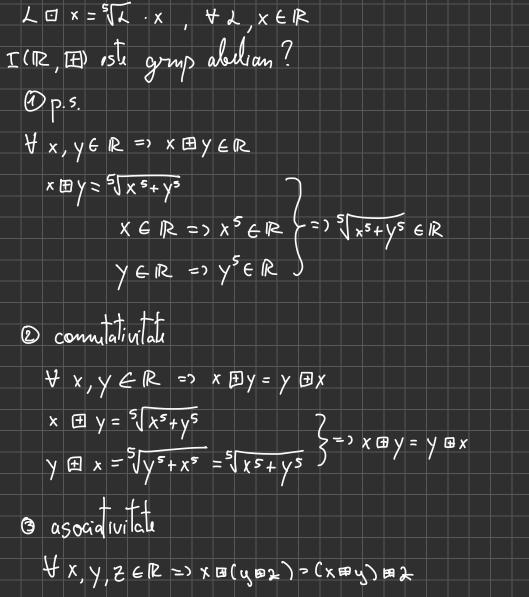
Algebra



Solutia: I (R*, I) grup abelian? (1) p.s. ₩ x, y & R * => x Ey & R* $X \rightarrow Y = X \cdot Y \in \mathbb{R}^{*}$ $\in \mathbb{R}^{*}_{\perp} \in \mathbb{R}^{*}_{\perp}$ 2 commalivitate \ x, y \ R \ = > x \ \ y = y \ \ x xy = yx3 asociolivitate ¥ x,y,ze R; = 7 x 图(y 田云) = (x 回y) 田云 XAYZ = XYBZ xyz = xyz ¥ x ∈ R, 3. 1 ∈ R, a.i. × Bl = x X 田 (= x x l = x = 1 = 1 = R *

5 demente simetrizaleile ¥ x ∈ R*, 3 x '∈ R*, a.î. x E x'=1 x x = (0,..., 6=> (R,*, 1) 15te gry: abelian II 1) L□(x ⊕y)= (L □x) @ (L □y) $L \square (x \square y) = L \square (xy) = (xy)^{T} = x^{T} \cdot y^{T} = (L \square x) \oplus (L \square y)$ 2) (人田B)OX=(LOX)田(BOX) $(L + \beta) \Box X = X (L + \beta) = X L \cdot X \beta = (L \Box X) \boxplus (\beta \Box X)$ 3) (LB) 0 x = L0 (B0x) $(L\beta)\Box X = XL\beta = XL\beta = XL\beta = (B\Box X)L = L\Box(B\Box X)$ 4) 1 0 X = X III | R * 1 ste un IR - spatiu vectorial împrevuic an II și op.



2) Sã se writice cã operatible

X D y = 5/x5+y5, Yx, y & R

⊞: R×R→R

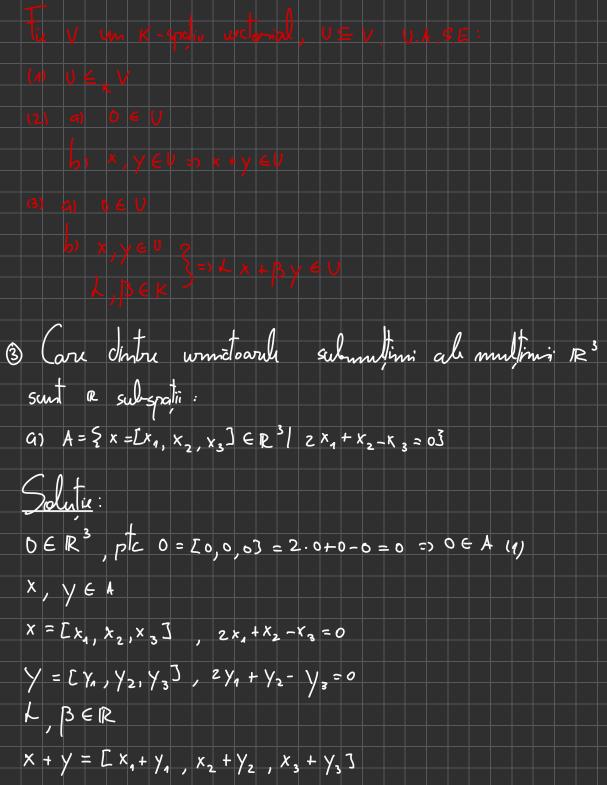
1): Rx R->1R

$$5\sqrt{x^5 + x^{15}} = 0 / ()5$$

$$x^5 + x^{15} = 0$$

X = -X ER

Din 0,..., @=> (R, +) grup abelian II 1) 人の(X田y)=んのX田人のY $L = 5\sqrt{x^5 + y^5} = 5\sqrt{\lambda} \cdot 5\sqrt{x^5 + y^5} = 5\sqrt{\lambda}(x^5 + y^5) =$ = 5 1 1x5 + Ly5 = 5 (5/2 x)5 + (5/2 y)5 = Lox 1 2 0 y 2) (L+B) OX=LOX田BOX $\sqrt{(\lambda + \beta)} \cdot \chi = \sqrt{(x^5(\lambda + \beta))} = \sqrt{(\lambda x^5 + \beta x^5)} = \sqrt{(1 + \beta)}$ = L ox 田 B ox 3) (LB) 0x = LO(BOX) (LB) 0 x = JAB · x Lo(Box) = 70(2/2 · x) = 2/2 · 2/2 · x = 2/2 · => (LB) 0x = L0(13 0x) 4) 10 x =x √1 · X = X λ = X I, II => IR este un IR -spatiu vectorial ampreumo en op B și cea externo D



$$= 2(x, +y,) + x_{2} + y_{2} - x_{3} - y_{3}$$

$$= 2x_{4} + 2y_{1} + x_{2} + y_{2} - x_{3} - y_{3}$$

$$= 2x_{4} + x_{2} - x_{3} + 2y_{4} + y_{2} - y_{3}$$

$$= 0 + 0 = 0 \in A$$

$$\forall L \in \mathbb{R}$$

$$\forall x \in \mathbb{R}^{3}$$

$$Lx = [L(2x_{4} + x_{2} - x_{3})] = L \cdot 0 = 0 \in A = 2 Lx \in A (2)$$

$$\lim_{n \to \infty} U_{n}(2) = 2 A \leq_{\mathbb{R}} \mathbb{R}^{3}$$

$$0 \in \mathbb{R}^{3} = 2[0,0,0] = 2 \cdot 0 + 0 \cdot 0 = 4$$

$$0 = 4 \text{ False} = 2 \text{ B} \neq_{\mathbb{R}} \mathbb{R}^{3}$$

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$$0 = 4 \text{ False} = 2 \text{ B} \neq_{\mathbb{R}} \mathbb{R}^{3}$$

$$0 \in \mathbb{R}^{3} = 2[0,0,0] = 2 \cdot 0 = 0 \text{ Adau}$$

$$\forall x, y \in \mathbb{C}$$

$$x = [x_{4}, x_{2}, x_{3}] \times_{4} = x_{2} = x_{3}$$

$$y = [y_{4}, y_{2}, y_{3}] \times_{4} = x_{2} = x_{3}$$

$$y = [y_{4}, y_{2}, y_{3}] \times_{4} = y_{2} = y_{3}$$

 $x+y=[x_1+y_1,x_2+y_2,x_3+y_3]$

$$x_{4} + y_{4} = x_{2} + y_{2} = x_{3} + y_{3} \in C$$
 (4)
 $\forall x \in C$
 $\forall x \in C$

2 x₁ y₁ = 0/: 2

-42 + 2 x, y, + -42 + x2+ x2 = 0

$$x_1, y_1 \in \mathbb{R}$$

O $\neq \mathbb{R}^3$

A) $E = \mathbb{R}^3 \setminus A$

A = $3 \in X_1, x_2, x_3 \in \mathbb{R}^3 \mid 2x_1 + x_2 - x_3 = 03$

O $\in A$

= $3 \in \mathbb{R}^3 \setminus A = 2 \in \mathbb{R}^3$

Via. if you would applied in sunt liminar:

a) $\{: \mathbb{R}^3 - 3\mathbb{R}^3, \} \in \mathbb{R}^3$

L, $\beta \in \mathbb{R}$, $x_1, y_2 \in \mathbb{R}^3$

L, $\beta \in \mathbb{R}$, $x_2, x_3 = \mathbb{E} \times -x_2, x_2 - x_3, x_3 - x_3 = \mathbb{E} \times -x_2, x_3 - x_3 = \mathbb{E} \times -x_3, x_3 - x_3 = \mathbb{E} \times -x_3 - x_3 - x_3 - x_3 = \mathbb{E} \times -x_3 - x_3 - x_3 - x_3 = \mathbb{E} \times -x_3 - x_3 - x_3 - x_3 - x_3 = \mathbb{E} \times -x_3 - x_3 - x_3 - x_3 - x_3 = \mathbb{E} \times -x_3 - x_3 - x_3 - x_3 - x_3 - x_3 = \mathbb{E} \times -x_3 - x_3 - x_$

 $L_{\chi}(x) = [L_{\chi}, -L_{\chi}, L_{\chi}, L_{\chi}, -L_{\chi}, L_{\chi}, -L_{\chi}]$

b) $\int : \mathbb{R}^3 \to \mathbb{R}^3$, $\int \mathbb{C}^{x_1} \times_2 \times_3 \mathbb{I} = \mathbb{C}^{x_1-1} \times_2 + 2 \times_3 + 1 \mathbb{I}$ $\forall L, \beta \in \mathbb{R}$

$$\forall x, y \in \mathbb{R}^{3}$$
 $x = [x_{1}, x_{2}, x_{3}]$
 $y = [y_{1}, y_{2}, y_{3}]$
 $f(x) + [y_{1}] = [f(x_{1} + f(y_{1} - f(y_{2} - f(y_{2} + 2f(y_{2} + 2f(y$

$$\begin{array}{l}
\lambda \int_{1}^{1}(x) + \beta \int_{2}^{1}(y) &= [\lambda \times_{1} + \lambda \times_{2}, \lambda \times_{1} - \lambda \times_{2}, 2\lambda \times_{1} + \lambda \times_{2}] \\
+ [\beta \times_{1} + \beta \times_{2}, \beta \times_{1} - \beta \times_{2}, 2\beta \times_{1} + \beta \times_{2}] &= \\
= [\lambda \times_{1} + \lambda \times_{2} + \beta \times_{1} + \beta \times_{2}, \lambda \times_{1} - \lambda \times_{2} + \beta \times_{1} - \beta \times_{2}, 2\lambda \times_{1} + \lambda \times_{2}] \\
+ 2[\beta \times_{1} + \beta \times_{2}] (h) \\
\int_{1}^{1} (\lambda \times_{1} + \beta \times_{1}) &= \int_{1}^{1} ([\lambda \times_{1} + \lambda \times_{2}] + [\beta \times_{1} + \beta \times_{2}] + [\beta \times_{1} + \beta \times_{2}]) &= \\
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