Presentado por: Miguel Fernando Becerra Código: 2201888

Karen Sarat Anaya Verdugo 2200813

Taller tensores

Sección 3.3.5

Punto 2

Inciso a.

Jección 3,3,5

2. Encuentre:

a. La parte simétrico
$$S_{j}^{+}$$
 y antisimétrico A_{j}^{+} del tensor

 R_{j}^{+} :

 $R_{j}^{+} = \begin{pmatrix} \frac{1}{2} & \frac{3}{3} & \frac{3}{2} \\ \frac{2}{2} & \frac{3}{2} & \frac{3}{2} \\ \frac{2}{2} & \frac{3}{2} & \frac{3}{2} \end{pmatrix}$

Porte simétrico

 $S_{j}^{+} = \frac{1}{2} \begin{pmatrix} R_{j}^{+} + R_{j}^{+} \end{pmatrix}$
 $S_{j}^{+} = \frac{1}{2} \begin{pmatrix} R_{j}^{+} - R_{j}^{+} \end{pmatrix}$
 $S_{j}^{+} = \frac{1}{2} \begin{pmatrix} R_{j}^{+} - R_{j}^{+} \end{pmatrix}$

Porte antisimétricol

 $A_{j}^{+} = \frac{1}{2} \begin{pmatrix} R_{j}^{+} - R_{j}^{+} \end{pmatrix}$
 $A_{j}^{+} = \frac{1}$

$$T_{i} = \begin{pmatrix} 1/3 \\ 2/3 \\ 1 \end{pmatrix} \qquad g^{ij} = g_{ij} = \begin{pmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

$$R_{\nu_j} = \begin{bmatrix} \begin{pmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} \frac{1}{2} & \frac{1}{3} & \frac{3}{2} \\ \frac{2}{3} & \frac{5}{2} & \frac{3}{4} \\ \frac{3}{2} & \frac{4}{3} & \frac{9}{2} \end{pmatrix}$$

o
$$R^{ki} = g^{ik} R^{i}$$

Al exponduto.

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Inciso c & d

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• Inciso e

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Punto 8

Inciso a & b

8.
$$9' = x + y$$
; $9' = x - y$; $9' = 2z$

9. $9' = (1, 1, 0)$ $9' = (1, 1, 0)$ $9' = (0, 0, 2)$

Compruebe que el sistemo es ortogonal.

9. $9' = (1x1) + (1x1) + (0x2)$

= $0 + 0 + 0 = 0$

1. $9' = (1x0) + (1x0) + (0x2)$

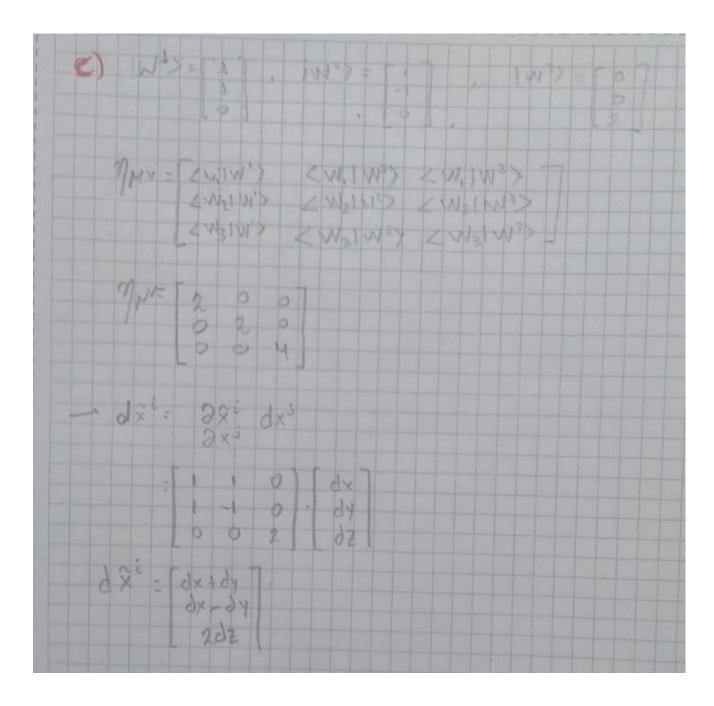
= $0 + 0 + 0 = 0$

Como los productal ponto entre los 3 Vectores es 0, conformo un sistema de coordenacial ortogonales.

6. Encuentre los vectores base para este sistema de coordenacias.

 $X = \frac{1}{2} \times \frac{1}{2} = \frac{1}{2} \times$

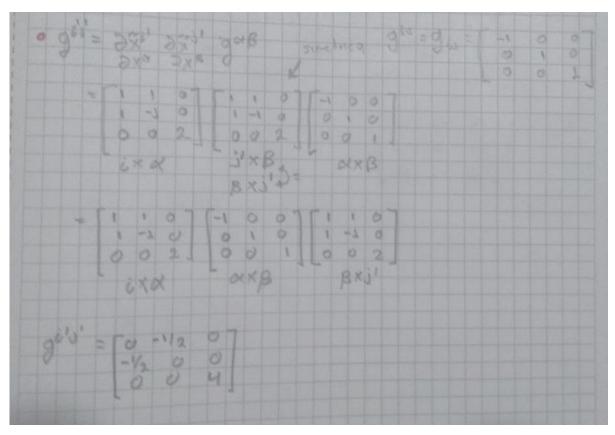
Inciso c



d. Encuentre las expresiones en el sistema (9, 92, 93) Para los vectores. A=25 , B=++25 , C=++7+3k $\begin{pmatrix} 1 & 1 & 0 \\ 1 & -1 & 0 \\ 0 & 0 & 2 \end{pmatrix} \begin{pmatrix} 0 & 1 & 1 \\ 2 & 2 & 7 \\ 0 & 0 & 3 \end{pmatrix} = \begin{pmatrix} 2 & 3 & 8 \\ -2 & -1 & -6 \\ 6 & 0 & 6 \end{pmatrix}$ Matriz De transformación e. Encoentre en el sistema (9', 92, 93) las expresiones para la siguientes relaciones vectoriales. $A \times B = \begin{pmatrix} 2 \\ +2 \\ 0 \end{pmatrix} \times \begin{pmatrix} 3 \\ -1 \\ 0 \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ 4 \end{pmatrix}$ $A \cdot C = \begin{pmatrix} 2 \\ -2 \end{pmatrix} \begin{pmatrix} 8 \\ -6 \end{pmatrix} = (16) + (12) + (0) = 28$ $(A \times B) \cdot C = \begin{pmatrix} 0 \\ 0 \end{pmatrix} \cdot \begin{pmatrix} 8 \\ -6 \\ 6 \end{pmatrix} = 0 + 0 + 24 = 24$ d'Qué se puede decir si se compara esas expresiones en ambos sistemos de coordenados? Si se compara con coordenadas cartesianas el resultado será diferente debido a las bases usadas para el calculo.

• Inciso f

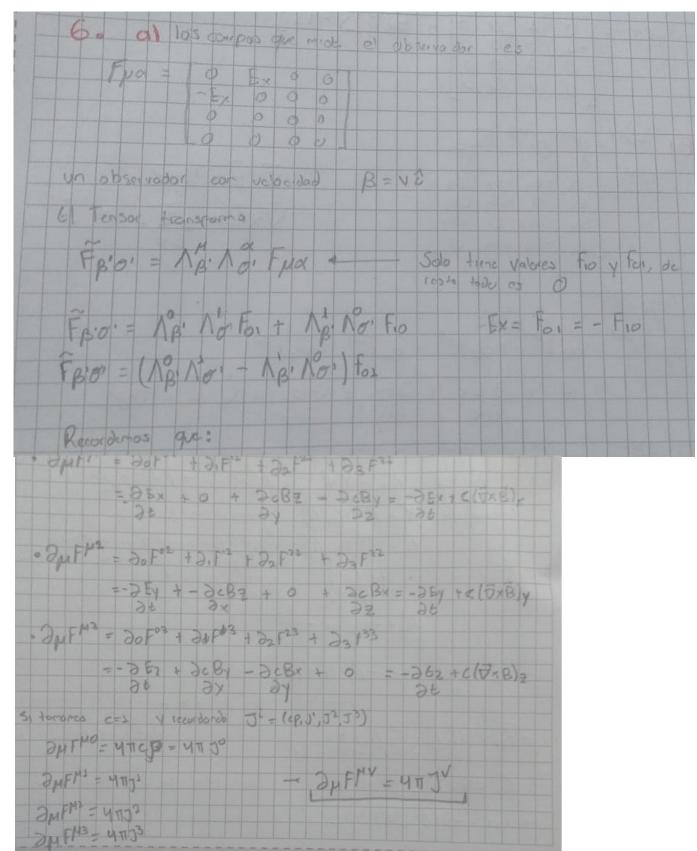
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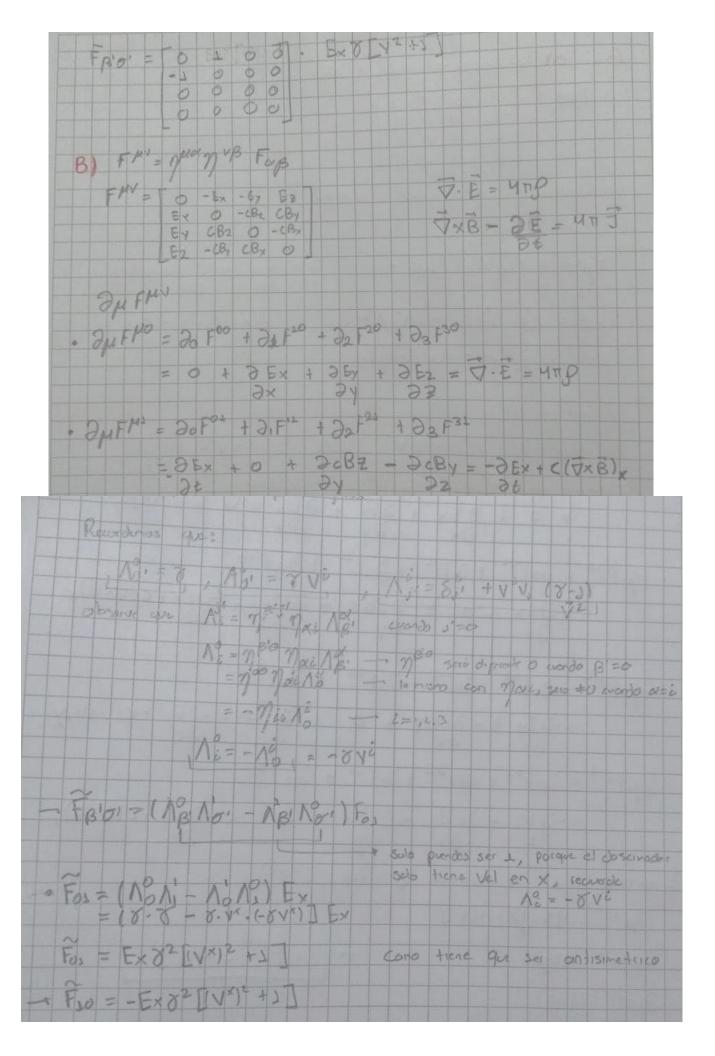


Sección 3.4.3

Punto 6

Inciso a & b





• Inciso c

E) FAIL DAFIX +	DVFXM = 0	VXE = 08
- EMVER DY FOR =0		96
evendo peza	Earch = Evore	
O = EOVAR DVFAR =	= EVOR DVEWBK BR	
- FW = EWX BX	= Exas Evas 2v Bx	
	= 25 × 2 × 8 ×	
	= 2 2x Bx	
	= 2(7.8) = 0	