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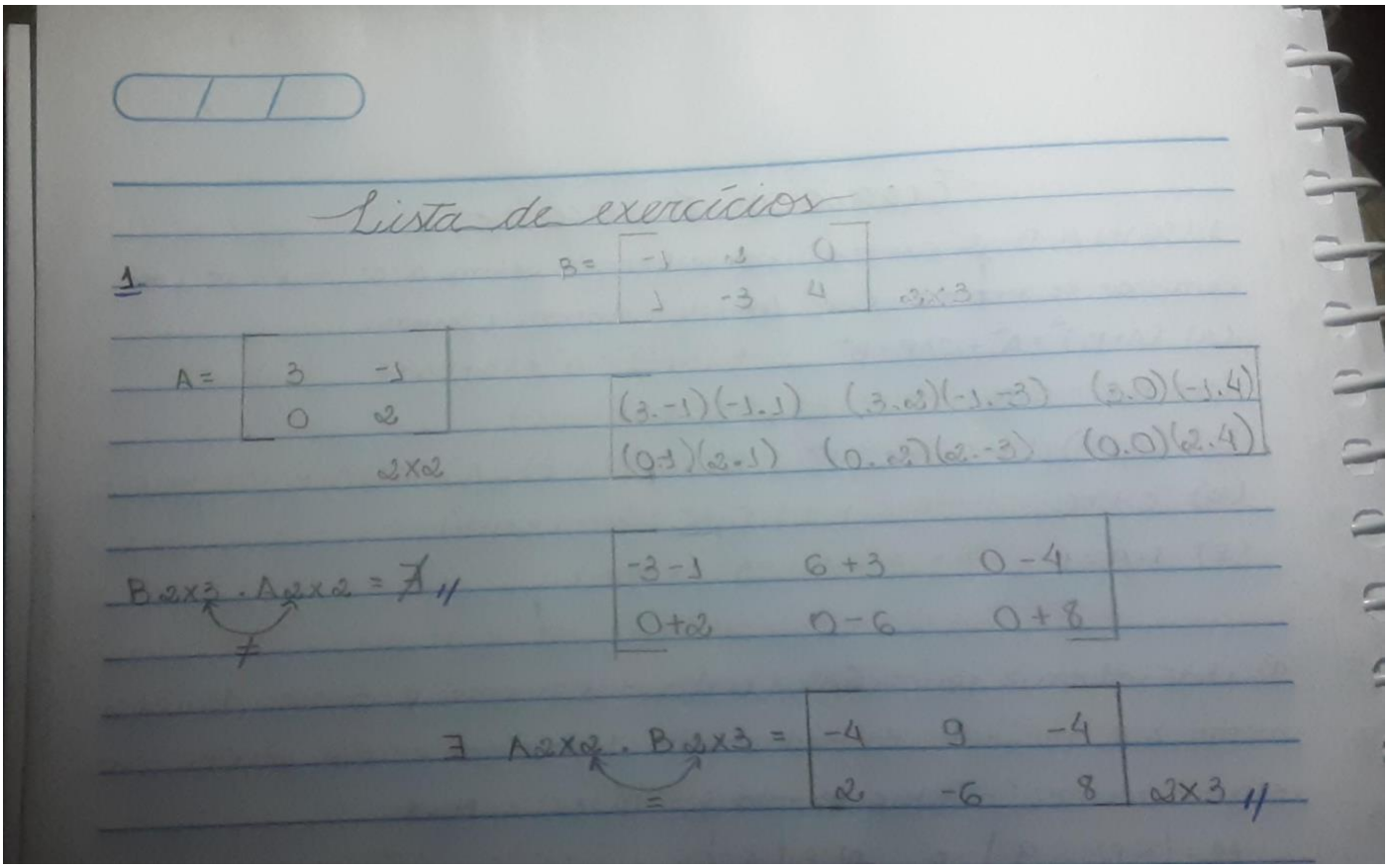

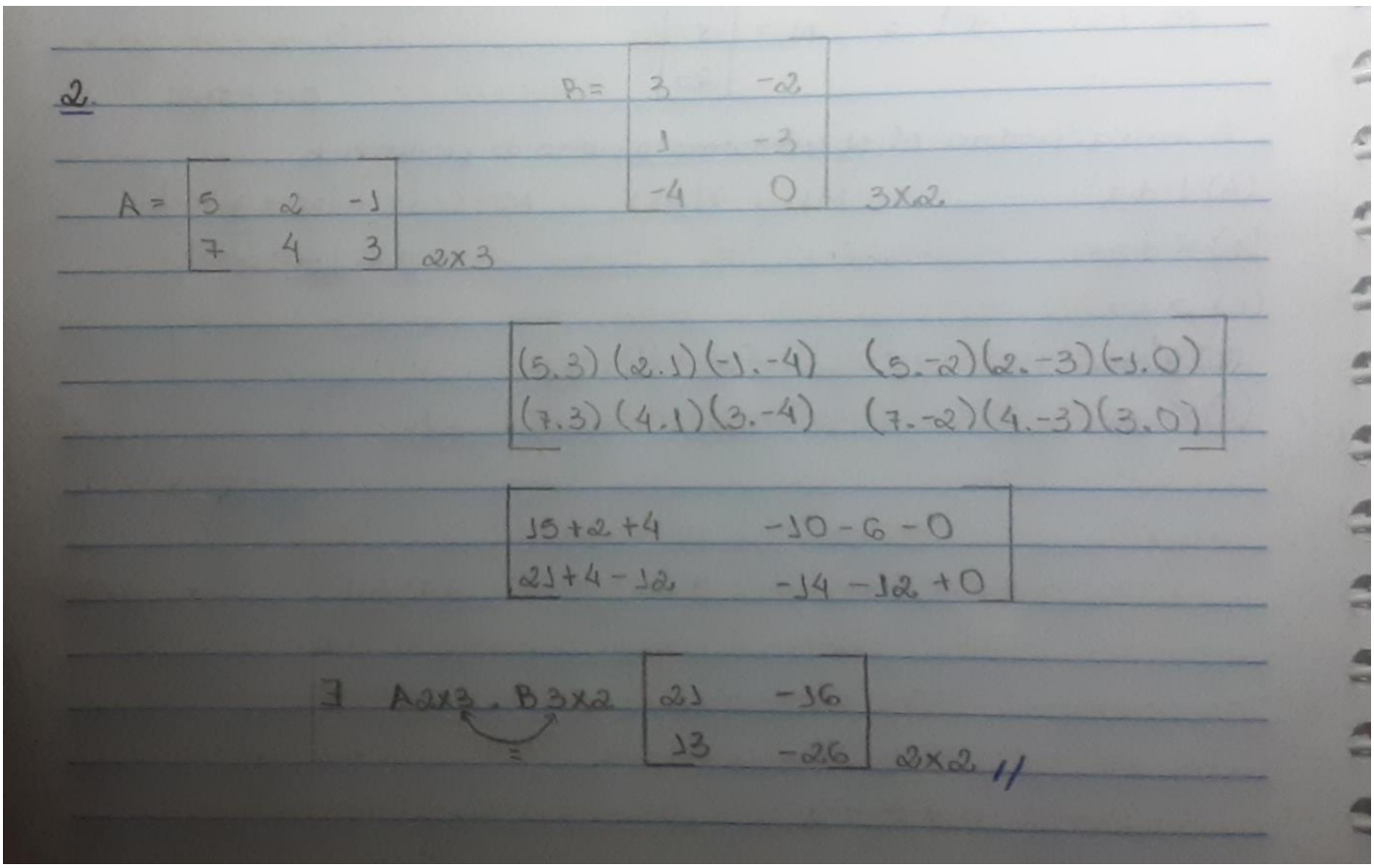

$$A = \begin{bmatrix} 5 & 2 & -1 \\ 7 & 4 & 3 \end{bmatrix}_{2\times3}$$

$$B = \begin{bmatrix} 3 & -2 \\ 1 & -3 \\ -4 & 0 \end{bmatrix}_{3\times2}$$

$$\begin{bmatrix} (3.5)(-2.7) & (3.2)(-2.4) & (3.-1)(-2.3) \\ (1.5)(-3.7) & (1.2)(-3.4) & (1.-1)(-3.3) \\ (-4.5)(0.7) & (-4.2)(0.4) & (-4.-1)(0.3) \end{bmatrix}$$

$$\begin{bmatrix} 15-14 & 6-8 & -3-6 \\ 5-21 & 2-12 & -1-9 \\ -20+0 & -8+0 & 4+0 \end{bmatrix}$$

$$\exists\ B_{3\times2} \cdot A_{2\times3} = \begin{bmatrix} 1 & -2 & -9 \\ -16 & -10 & -10 \\ -20 & -8 & 4 \end{bmatrix}_{3\times3} //$$

$$=$$

3. $$A = \begin{bmatrix} -1 & 0 \\ 1 & 2 \end{bmatrix}_{2\times2} \qquad A^T = \begin{bmatrix} -1 & 1 \\ 0 & 2 \end{bmatrix}_{2\times2}$$

$$\begin{bmatrix} (-1.-1)(0.0) & (-1.1)(0.2) \\ (1.-1)(2.0) & (1.1)(2.2) \end{bmatrix}$$

$$\begin{bmatrix} 1+0 & -1+0 \\ -1+0 & 1+4 \end{bmatrix}$$

$$A_{2\times2} \cdot A^T_{2\times2} = \begin{bmatrix} 1 & -1 \\ -1 & 5 \end{bmatrix}_{2\times2} //$$

$$=$$

alternativa (B) //

4. $A = \begin{bmatrix} 1 & 2 & 5 \\ 3 & 4 & 6 \end{bmatrix}_{2\times3}$ $B = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}_{3\times1}$

C_{21} $\begin{bmatrix} (1.1)(2.2)(5.3) \\ (3.1)(4.2)(6.3) \end{bmatrix}$

$\begin{bmatrix} 1+4+15 \\ 3+8+18 \end{bmatrix}$

$C_{21} = 29$ // $C = \begin{bmatrix} 20 \\ 29 \end{bmatrix}$

alternativa (A) 29 //

5 a) $\begin{bmatrix} 25 & 50 & 200 & 20 \\ 28 & 60 & 150 & 22 \end{bmatrix}_{2\times4}$ $\begin{bmatrix} 1 & 1 \\ 8 & 10 \\ 0,9 & 0,8 \\ 1,5 & 1 \end{bmatrix}_{4\times2}$

b) $\begin{bmatrix} (25.1)(50.8)(200.0,9)(20.1,5) & (25.1)(50.10)(200.0,8)(20.1) \\ (28.1)(60.8)(150.0,9)(22.1,5) & (28.1)(60.10)(150.0,8)(22.1) \end{bmatrix}$

$\begin{bmatrix} 25+400+180+30 & 25+500+160+20 \\ 28+480+135+33 & 28+600+120+22 \end{bmatrix}$

produto $= \begin{bmatrix} 635 & 705 \\ 676 & 770 \end{bmatrix}$

$705-635=70$

$770-676=94$

$70+94=164$

R$ 164,00 //

6

$$\begin{bmatrix} a & 1 \\ -1 & 0 \end{bmatrix} \quad \begin{bmatrix} 0 & -1 \\ a & 1 \end{bmatrix}$$

$$\begin{bmatrix} (0.a)(-1.-1) & (0.1)(-1.0) \\ (a.a)(1.-1) & (a.1)(1.0) \end{bmatrix}$$

$$\begin{bmatrix} 0+1 & 0+0 \\ a^2-1 & a+1 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 \\ a^2-1 & a \end{bmatrix} \qquad \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \quad a=1 //$$

alternativa (E) 1 //

Lista de exercícios

1. $A = \begin{bmatrix} A & B \\ C & D \end{bmatrix}$ $\quad (A^T)^T = \begin{bmatrix} A & B \\ C & D \end{bmatrix}$

$B = \begin{bmatrix} E & F \\ G & H \end{bmatrix}$ $\quad (B^T)^T = \begin{bmatrix} E & F \\ G & H \end{bmatrix}$

portanto $(A^T)^T = A$ e $(B^T)^T = B$

alternativa (A) $(A^T)^T = A$ e $(B^T)^T = B$ //

2. De acordo com as particularidades sobre o produto matricial, podemos ver que:

alternativa (D) $(AB)C = A(BC)$ é verdadeira //

(A) $AB = BA$ → falso

(B) se $AB = AC$, então $B = C$ → falso

(C) Se $A^2 = O_n$ (matriz nula), então $A = O_n$ → falso

(D) $(AB)C = A(BC)$ → verdadeira

(E) $(A+B)^2 = A^2 + 2AB + B^2$ → falso

3 $\begin{bmatrix} 5 & 8 & 10 \\ x & y & z \end{bmatrix} + \begin{bmatrix} 5 & 8 & 10 \\ 9 & 6 & 4 \end{bmatrix} \cdot \begin{bmatrix} x \\ y \\ z \end{bmatrix}$

$\begin{bmatrix} 10 & 16 & 20 \\ 9 & 6 & 4 \end{bmatrix} \cdot \begin{bmatrix} 9 \\ 6 \\ 4 \end{bmatrix}$

$\begin{bmatrix} 90 & 96 & 80 \\ 81 & 36 & 16 \end{bmatrix}$

$x = 9$

$y = 6$

$= 4$

alternativa (B) //

4. $A = \begin{bmatrix} -1 \\ 4 \\ 2 \end{bmatrix}$ $A^T = \begin{bmatrix} -1 & 4 & 2 \end{bmatrix}$

alternativa (C) primeira linha da transposta de A //