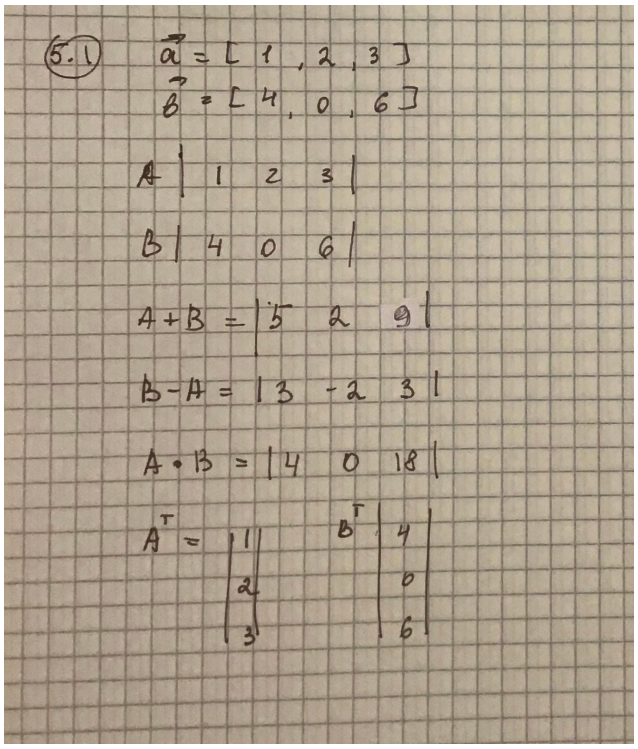
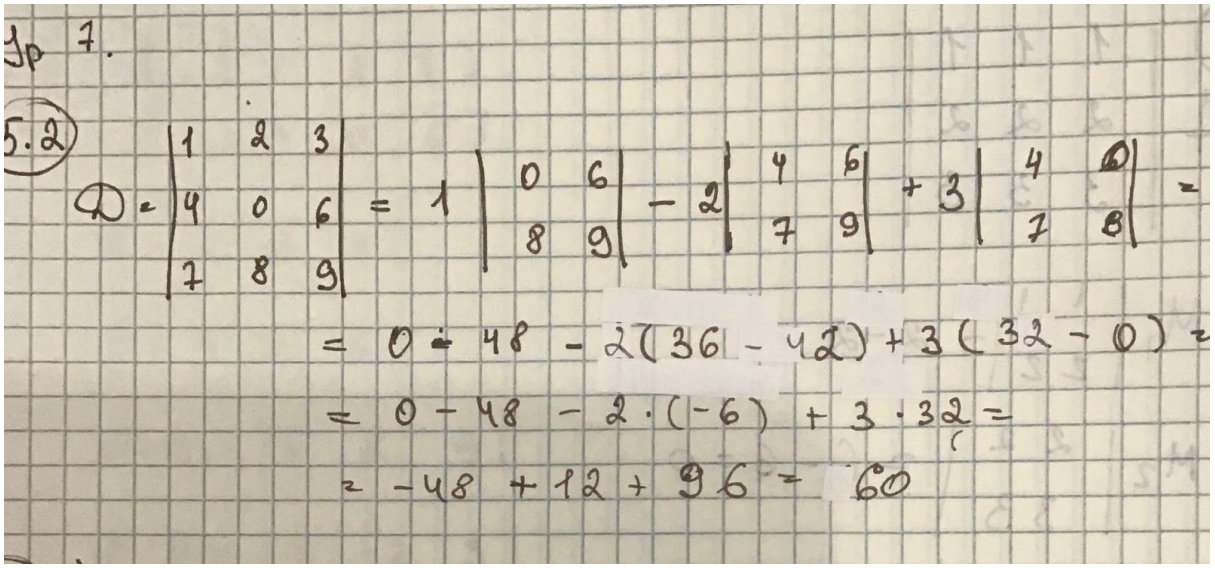
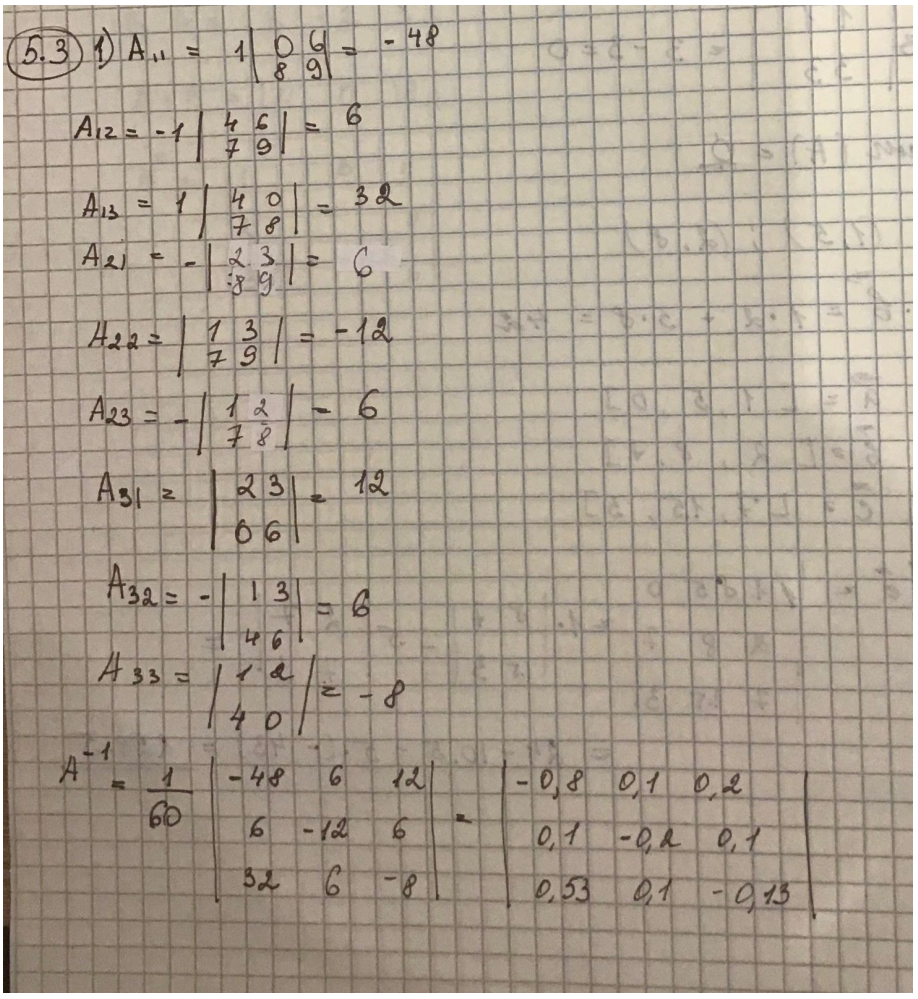

5.1
$\vec{a} = [1, 2, 3]$
$\vec{b} = [4, 0, 6]$
$A = |1\ 2\ 3|$
$B = |4\ 0\ 6|$
$A+B = |5\ 2\ 9|$
$B-A = |3\ -2\ 3|$
$A \cdot B = |4\ 0\ 18|$
$A^T = \begin{vmatrix} 1 \\ 2 \\ 3 \end{vmatrix}$
$B^T = \begin{vmatrix} 4 \\ 0 \\ 6 \end{vmatrix}$

2.


Ур 7.
5.2
$D = \begin{vmatrix} 1 & 2 & 3 \\ 4 & 0 & 6 \\ 7 & 8 & 9 \end{vmatrix} = 1 \begin{vmatrix} 0 & 6 \\ 8 & 9 \end{vmatrix} - 2 \begin{vmatrix} 4 & 6 \\ 7 & 9 \end{vmatrix} + 3 \begin{vmatrix} 4 & 0 \\ 7 & 8 \end{vmatrix} =$
$= 0 - 48 - 2(36 - 42) + 3(32 - 0) =$
$= 0 - 48 - 2 \cdot (-6) + 3 \cdot 32 =$
$= -48 + 12 + 96 = 60$

3.



(5.3) 1) $A_{11} = 1\begin{vmatrix} 0 & 6 \\ 8 & 9 \end{vmatrix} = -48$

$A_{12} = -1\begin{vmatrix} 4 & 6 \\ 7 & 9 \end{vmatrix} = 6$

$A_{13} = 1\begin{vmatrix} 4 & 0 \\ 7 & 8 \end{vmatrix} = 32$

$A_{21} = -\begin{vmatrix} 2 & 3 \\ 8 & 9 \end{vmatrix} = 6$

$A_{22} = \begin{vmatrix} 1 & 3 \\ 7 & 9 \end{vmatrix} = -12$

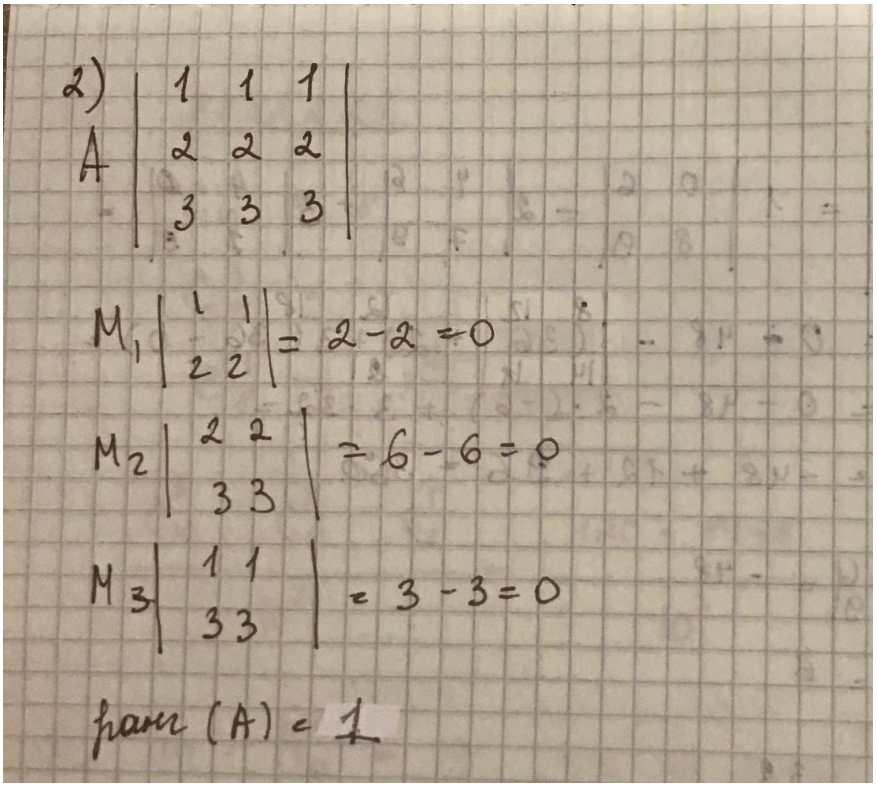
$A_{23} = -\begin{vmatrix} 1 & 2 \\ 7 & 8 \end{vmatrix} = 6$

$A_{31} = \begin{vmatrix} 2 & 3 \\ 0 & 6 \end{vmatrix} = 12$

$A_{32} = -\begin{vmatrix} 1 & 3 \\ 4 & 6 \end{vmatrix} = 6$

$A_{33} = \begin{vmatrix} 1 & 2 \\ 4 & 0 \end{vmatrix} = -8$

$$A^{-1} = \frac{1}{60}\begin{vmatrix} -48 & 6 & 12 \\ 6 & -12 & 6 \\ 32 & 6 & -8 \end{vmatrix} = \begin{vmatrix} -0,8 & 0,1 & 0,2 \\ 0,1 & -0,2 & 0,1 \\ 0,53 & 0,1 & -0,13 \end{vmatrix}$$



2) $A = \begin{vmatrix} 1 & 1 & 1 \\ 2 & 2 & 2 \\ 3 & 3 & 3 \end{vmatrix}$

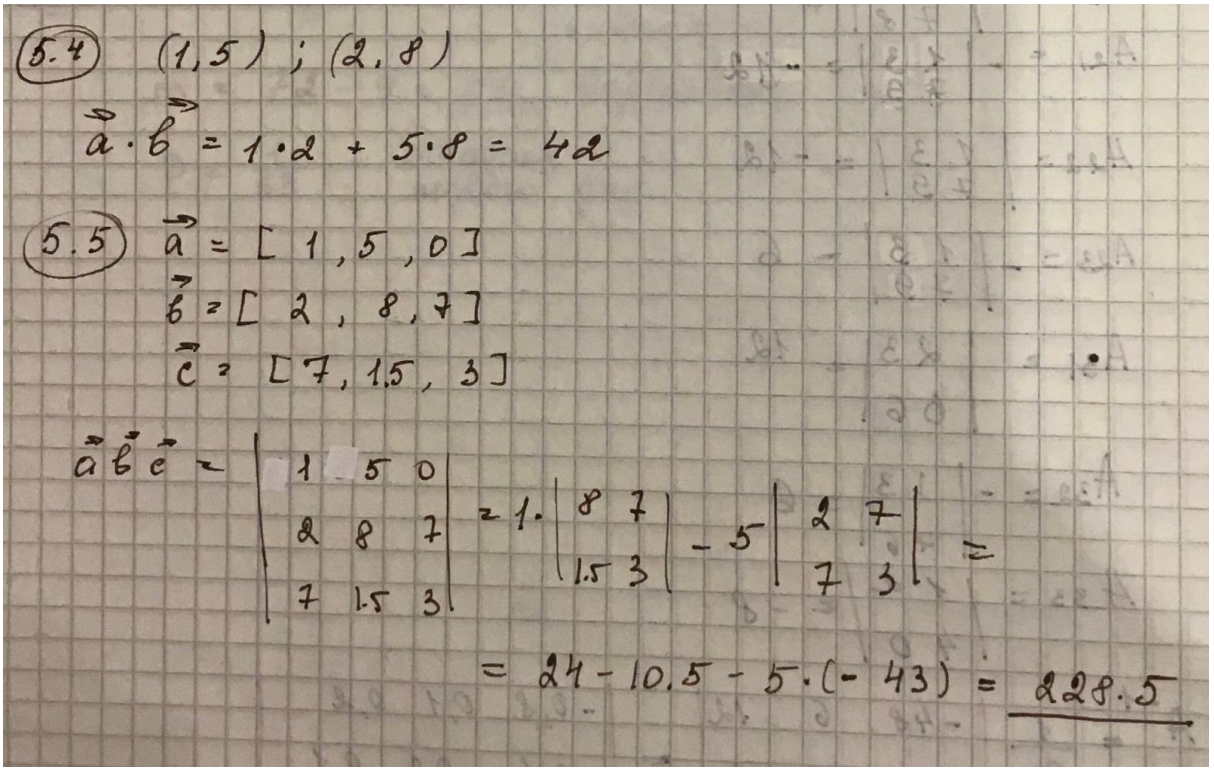
$M_1 \begin{vmatrix} 1 & 1 \\ 2 & 2 \end{vmatrix} = 2 - 2 = 0$

$M_2 \begin{vmatrix} 2 & 2 \\ 3 & 3 \end{vmatrix} = 6 - 6 = 0$

$M_3 \begin{vmatrix} 1 & 1 \\ 3 & 3 \end{vmatrix} = 3 - 3 = 0$

ранг (A) = 1

4, 5



(5.4) $(1,5)$; $(2,8)$

$\vec{a} \cdot \vec{b} = 1 \cdot 2 + 5 \cdot 8 = 42$

(5.5) $\vec{a} = [1, 5, 0]$

$\vec{b} = [2, 8, 7]$

$\vec{c} = [7, 1.5, 3]$

$$\vec{a}\vec{b}\vec{c} = \begin{vmatrix} 1 & 5 & 0 \\ 2 & 8 & 7 \\ 7 & 1.5 & 3 \end{vmatrix} = 1 \cdot \begin{vmatrix} 8 & 7 \\ 1.5 & 3 \end{vmatrix} - 5 \begin{vmatrix} 2 & 7 \\ 7 & 3 \end{vmatrix} =$$

$$= 24 - 10.5 - 5 \cdot (-43) = \underline{228.5}$$