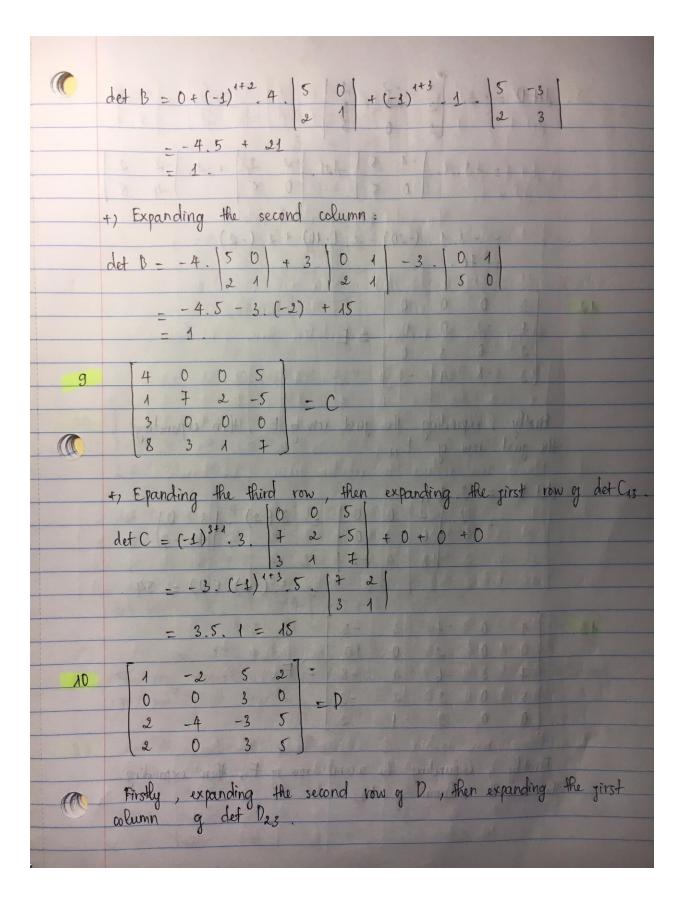
Section 3.1

1. +, Expanding the jirst row:

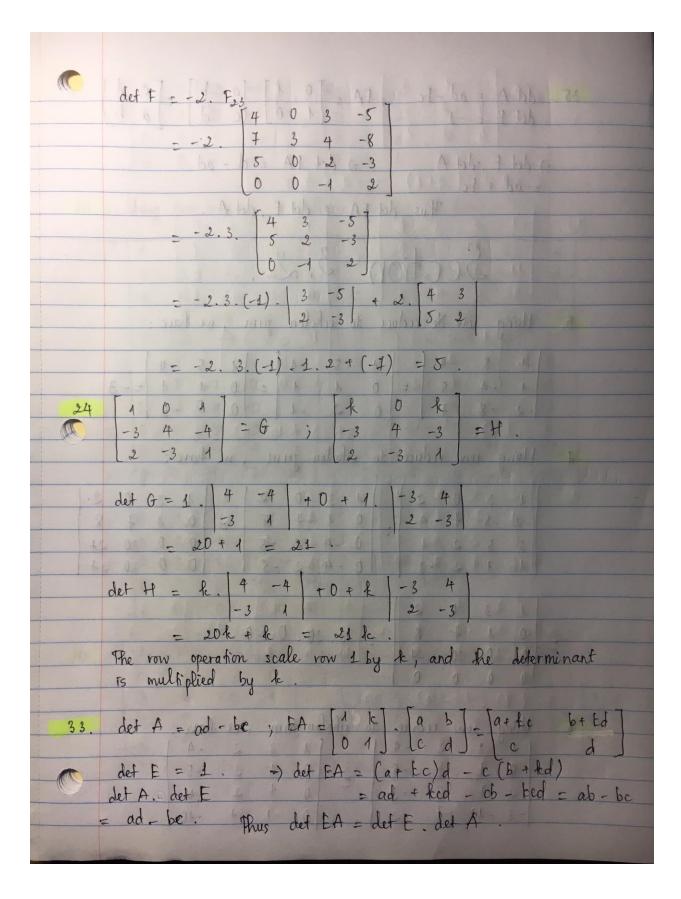
det A = a (-1)1+1. 3. det A4 + (-1)1+2. 0. det A12 + (-1)1+3. 4. det A13

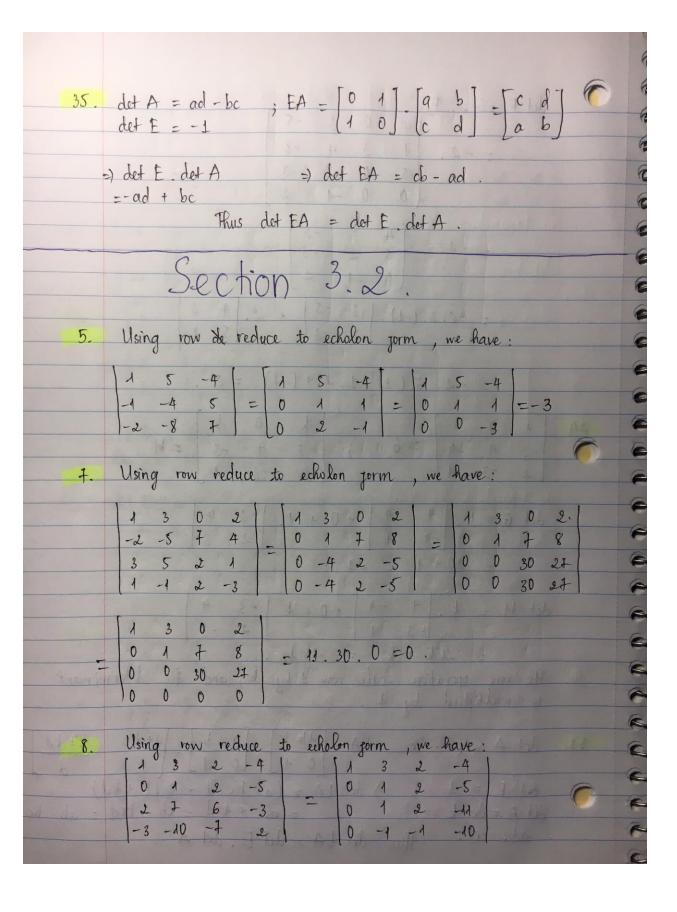
= 3. (-13) + 4.10 = 1

+) Expanding the girst row:



	$\det D = -3 \cdot \begin{bmatrix} 1 & -2 & 2 \\ 2 & -4 & 5 \\ 2 & 0 & 5 \end{bmatrix}$
	= -3.1. -4 5 -2, -2 2 +2. -2 2 -4 5
	emulia lange all publicant
	= -3.1.(-20) -2.(-10) +2.(-2)
	= 16. 2 + 10 (3 + 10)
12	3 0 0 0 21 4 (24) 44 2 4
1/00	F-200=F
	2 6 3 0
	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
	Firstly, expanding the girst row of E, then expanding the girst row of E4.
ed dot Cor	det E = 3. Equals mile on both ill gribary to
4	3. [-2 0 0] = 3. [-2] . [3 0]
	4 2 0
	$def E = 3. E_{44}$ $= 3. [-2 0 0] = 3. [-2) . [3 0]$ $= 6 3 0 $
	$\begin{vmatrix} 6 & 3 & 0 \\ -8 & 4 & -3 \end{vmatrix} = 3 \cdot (-2) \cdot (-2) = 54$
	$[-8 \ 4 \ -3]$ $= 3.(-2).69) = 54.$
13.	$\begin{bmatrix} +8 & 4 & -3 \\ & -3 & -3 \end{bmatrix} = 3.(-2).(-3) = 54.$





	1 3 2 -4 [1 3 2 -4]
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	0 0 1 -15 0 0 0 -6
	13A - 1 A 1 A - 2 () A 1 - 1 A 1 A - 2 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A
10.	Using row reduce to echolon jorm, we have:
	to the state of th
	1 30 -1 00 -2 10 3 -10 00 -2
	0 2 4 -2 6 0 2 4 -2 -6
	-2 -6 2 3 10 = 0 0 0 3 6
	15-62-3 02-72-5
	0 2 -4 5 9 1 0 2 -4 5 9
	8-10-12 18 4 8 A 8 1.6 4
	1 3 -1 0 02 1 3 -1 0 2
	0 2 4 -2 -6 0 2 4 -2 -6
	= 0 0 0 0 3 16 7 0 0 0 3 6
	0 0 -11 4 1 0 0 0 -3/2 -31/2
	100-8715 000-1-9
	1 30 -10 0 2
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
-	
	0 0 3/2 3/2
	1 0 0 0 0 413
	F1. 8 -8 -8 -2 -2 -3 -8 -1 -
11	Using row reduction and cojactor expansion, we have:
	3 4 -3 -1 3 4 -3 -1 3 4 .
	$ \begin{vmatrix} 3 & 0 & 1 & -3 \\ -6 & 0 & -4 & 3 \end{vmatrix} = \begin{vmatrix} 3 & 0 & 1 & -3 \\ -6 & 0 & -4 & 3 \end{vmatrix} = (-1)^{\frac{5}{4}} + \frac{6}{6} - 4 $
	[-b 0 -4 3 0 2 1
	168-4-1 0021

	13 1 -3 [4 2] - 2 - 3]
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	0 2 11 0 0 0
	0-0000000000000000000000000000000000000
	= -4.3.(-2+6) = -4.3.4 = -48.
	to their you wedge to expere your we have:
12.	
5	
9	11 4 6 6 3 0 -2 0
2	4 2 4 3 4 3
B	[-1 + 2 3] [-1 22 3]
	= 3. 3 4 3 = 3. 5 0 -3
	3 0 -2 3 0 -2
	- L- 4 - L 0 - L 4 - L 0
	= 3. (-2). 5 -3 0.3 (-2). (-10 + 9) = 6
1 5	3 42 0
10	- 1- 0 0 0 21 + 8- 0 0
13	2 5 4 1 2 5 4 1
	4 7 6 0 4 7 6 0 6 -2 -4 1 4 -7 -8 0
	1-6-7-7-01
	A 7 6 4 7 6 18 -2
	=1. $ 4-7-8 = 80-2 =(-7).$ $ 101 $
- 10	-6 or 7 mg 7 do 0 0 0 d by and 10 10 10 10 10 10 10 10 10 10 10 10 10
	$= (-1) \cdot (8-20) = 84$
1 - 9 - 8. C	1-12-63-61-13-16-0-18-1
	6 4 9 3 1 6 4 9 3
All the same of th	

15. def = 3.7 = 21 47. det = 7 18 det = - F det = 2.7 = 14 19 20 det = 7 5 1 -1 22 10 16 1 -3 -2 = (-1). = (-1) - 3 = -3 Since det = -3 =0 => the matrix is invertible