Note: The other Tasks were all done in the Files Main.cpp, Functions.h and Matrix.h. Also all Questions were answered directly in the implementation using comments.

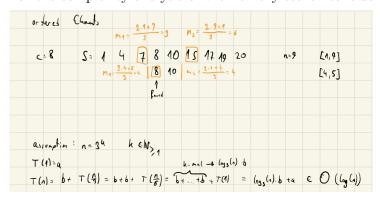
## 1 Task 7 - complexity analysis

Given the complexity analysis of Binary Search from the lecture:

Assumption:	e levels	, the .	vray we	roted		
			$\left\lfloor \frac{q+q}{2} \right\rfloor$			
c = 8	S = 1	4 7	8 10	15 17 19	20	n=9
	1	4 7	8			
		1	8			
			1001			
		1	901			
contains 4 (LD) ri	(U, C)					
Rustine ma	Lysis:					
Tout (a) 6 OC	1)					
Twist (n) e	<u>)</u>					
Assumption	n=24-1 1	( c N >, 1		( 6)		
T (1) = a				("3 <u>;</u> (n) "k - 5kp	5	
	T (12 - 1)	= 1+6+	T( 4 -1)			n)+a c O((6; (n))

The Binary search thus has a complexity of  $\mathcal{O}(log_2(n))$  which in term is  $\mathcal{O}(log(n))$ .

For the complexity analysis of the Ternary search consider:



The Ternary search thus has a complexity of  $\mathcal{O}(\log_3(n))$  which in term is also  $\mathcal{O}(\log(n))$ 

We conclude, that both concepts have the same order of complexity. Although the Binary search needs less comparisons, which makes it the more efficient variant in most cases.