1.

Decimanl	Ternary
0	0000
1	0001
2	0002
3	10
4	11
5	12
6	20
7	21
8	22
9	100
10	101

In order to change a nonnegative number to a using trits you take into consideration that trits are in base 3. So in order to convert a nonnegative number to ternary you take 10 and divide by 3 which gives us 1 with a remainder of 0 and this is 3^0. Then take 3 and divide that by three which gives us one with a remainder of 0 and this would be 3^1. Then take 3 and divide by 1 which gives 0 with remainder of 1. Taking all the remainders we produce 101 as the ternary number. We do not do things in trits because are computers store things in binary instead of ternary. It is hard for us to put some thing together that takes into consideration 3 different states. It takes a lot more steps in a mathematical equation in comparison to a binary.

2. RM[5][3]: 5*20+ 3 = 103 * 4 = 412 + 100 = 512
RM[9][19]: 9*20+19 = 199 *4 = 796+100 = 896

3. Maximum number of non-zero elements:
Since it's a lower traiangle matrix this would be a square matrix that has the entries that are above the main diagonal are zero. So the non zero enteries would be below the main diagonal.
For a nxn lower triangular array it would be for non zero elements is nonzero elements = ((1+N)N)/2.
Formula In order to store non zero elements sequentially is
 $K = (i^2+i))/(2+j)$

4. In a tridiagonal matrix the elements that are on the major diagonal and are above and below are zeros. Since this is a nxn array it will have n elements that are on the diagonal and n-1 elements above and below the diagonal. So the maximum number of non-zero elements would be non-zero elements = (3n-2).
In order to store these in the memory sequentially the formula for this would be k = 2i − 2 + j.

5.
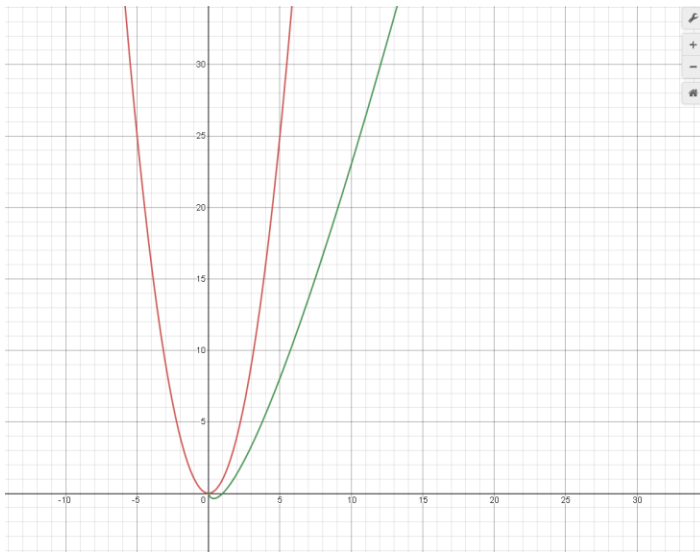
Increasing the value of the a value by one produced a graph shown here:
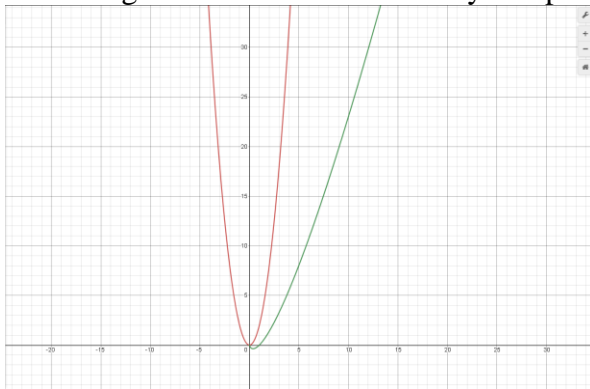
This caused the formula for f(n) to shift more to the left causing them to not intersect at all so then I increased the value of b to 7 and kept a at 2. This would then cause an intersection at 1.563. what I noticed was that increasing the b value and decreasing the a value caused these to equations to intersect.

(1.563, 4.888)
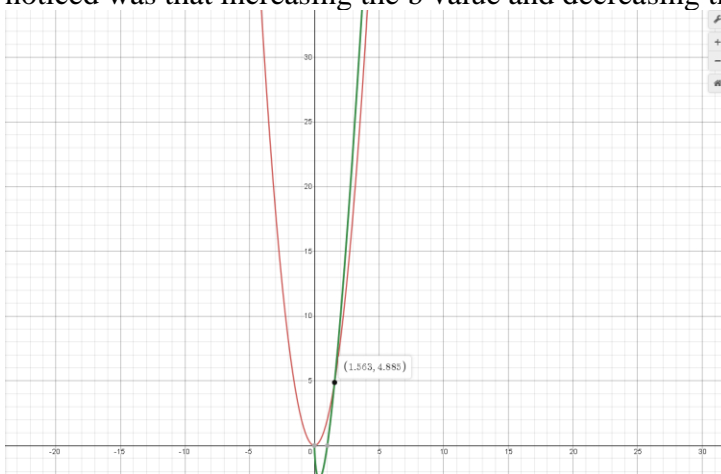
6. First converting one hour to micro seconds. Which is 3.6×10^9.

$Lg(N) = 3.6 \times 10^9$

$N = 2^{3.6 \times 10^{\wedge}9}$

7. $N^3 = 3.6 \times 10^9$

$N = \sqrt[3]{(3.6 \times 10^9)}$

$N = 1532618864.79$