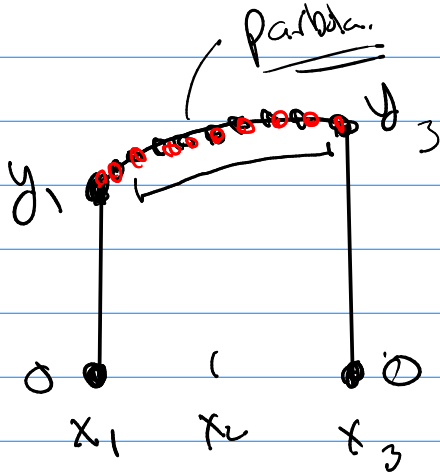


# Math 451

Q's exp(x)  
 100 pts = 100%

(Fine) - (Fix)



$$X = \begin{bmatrix} x_1 & x_1 & \text{(points)} & x_3 & x_3 \\ 0 & 0 & \text{(parabola)} & 0 & 0 \end{bmatrix}$$

plot(x, y)

"Advanced"

① preallocation

$$A = [1 \ 2; 3 \ 4] \rightarrow \begin{matrix} 1 & 2 \\ 3 & 4 \end{matrix}$$

$$A(2) \rightarrow 3$$

$$A(2,2) \rightarrow 4$$

$$A(2,2) = -5 \rightarrow \begin{matrix} 1 & 2 \\ 3 & -5 \end{matrix}$$

$$A(3,1) \rightarrow \text{error}$$

$$A(5,2) = 3 \rightarrow$$

$$\begin{matrix} 1 & 2 \\ 3 & -5 \\ 0 & 0 \\ 0 & 0 \\ 0 & 3 \end{matrix} \left. \vphantom{\begin{matrix} 1 & 2 \\ 3 & -5 \\ 0 & 0 \\ 0 & 0 \\ 0 & 3 \end{matrix}} \right\} \text{slow}$$

preallocate: make vectors/matrices of "full" size @ the start.

64, -16, 9, -1, 14, ...

20 values

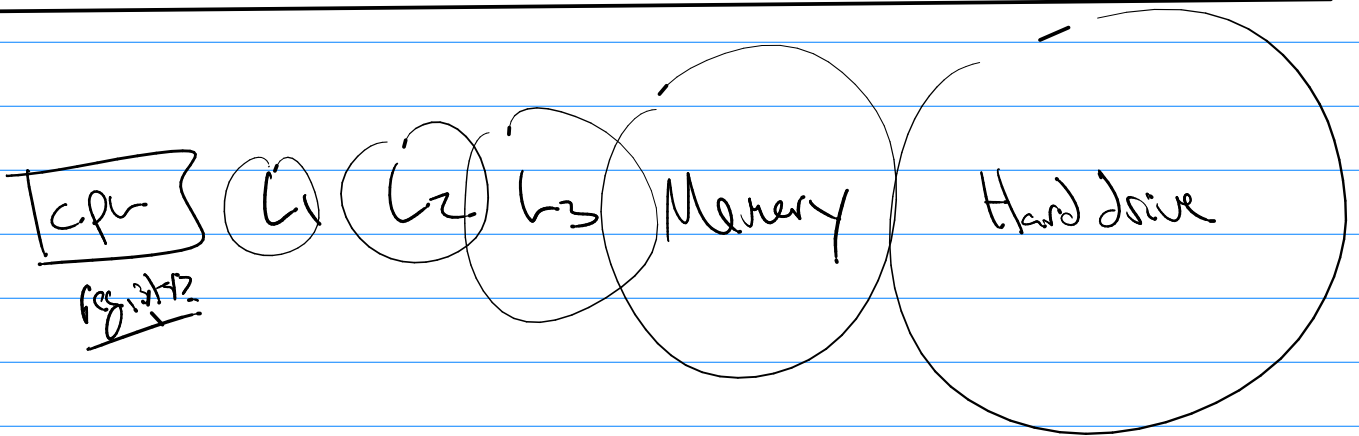
$a = \text{zeros}(1, 20)$  % preallocate

$a(1) = 64$

for  $i=2:20$

$a(i) = a(i-1) * (-4);$

end



② Masking

$y = 1:100$

mask

$y(2:2:100) = \text{sum}(y(\text{mask}))$

③ Vectorizata