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$$\alpha^2 = (10^{23})^2 = 10^{46} = 1000 \dots \underbrace{000 \dots 0}_{40 \text{ zeri}} \underbrace{000 \dots 0}_{16 \text{esima cifra significativa}}$$

Solitamente, gli errori nelle 16-esima cifra sono "innocui",
 ma ci sono alcune operazioni 'pericolose', ad esempio
 sottrazioni tra due numeri quasi uguali.

$$N = 1.0e10 \times$$

$$[2.0000 \quad 0.3000 \quad 0.0000]$$

$$N_{\text{vol dire}} [1.0e10 \times 2$$

$$1.0e10 \times 0.3000$$

$$1.0e10 \times 0.0000]$$

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

$$\begin{cases} 2x + 3y = 5 \\ 6x + 7y = 8 \end{cases}$$

$$\begin{aligned} x &= -2.75 \\ y &= 3.5 \end{aligned}$$

$$\underbrace{\begin{bmatrix} 2 & 3 \\ 6 & 7 \end{bmatrix}}_A \cdot \begin{bmatrix} x \\ y \end{bmatrix} = \underbrace{\begin{bmatrix} 5 \\ 8 \end{bmatrix}}_b$$

$$Ax = b$$

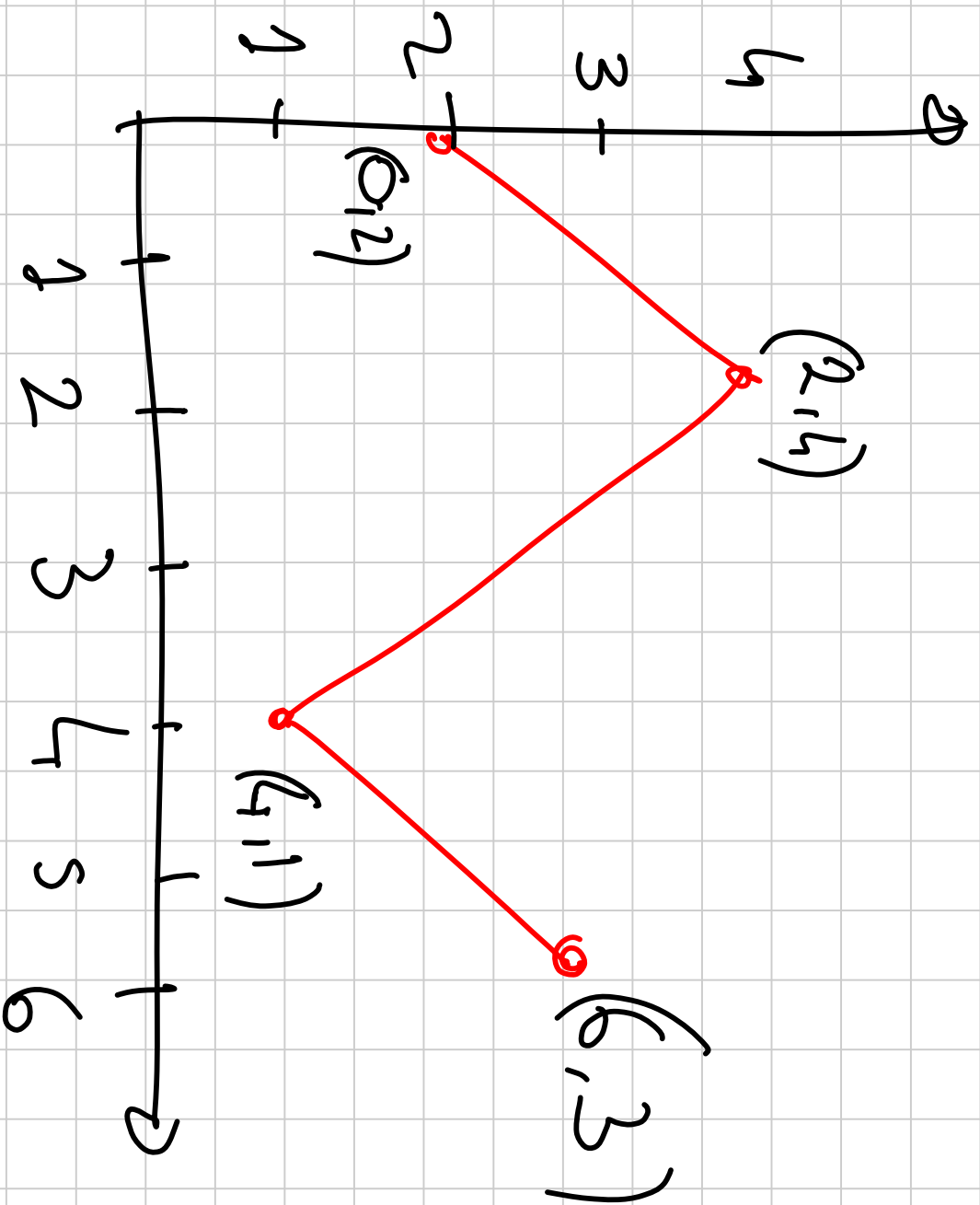
" $z = \frac{b}{A}$ " (see previous homework)

$$A - \lambda I = \begin{bmatrix} 2 - \lambda & 3 \\ 6 & 7 - \lambda \end{bmatrix}$$

$$\det(A - \lambda I) = (2 - \lambda)(7 - \lambda) - 3 \cdot 6$$

$$= \lambda^2 - 9\lambda + 14 - 18$$

$$= \lambda^2 - 9\lambda - 4$$



$$X = [0 \ 2 \ 4 \ 6]$$

$$y = [2 \ 4 \ 1 \ 3]$$

$x = \text{zeros}(1, 10);$

$$x(1) = 1$$

$$x(2) = 2$$

$$x(3) = 3$$

\vdots

$$x(10) = 10$$

for $k = 1 : 10$

$$x(k) = k;$$

end

$$y(1) = 1$$

$$y(2) = 4$$

\vdots

$$y(10) = 100$$

for $k = 1 : 10$

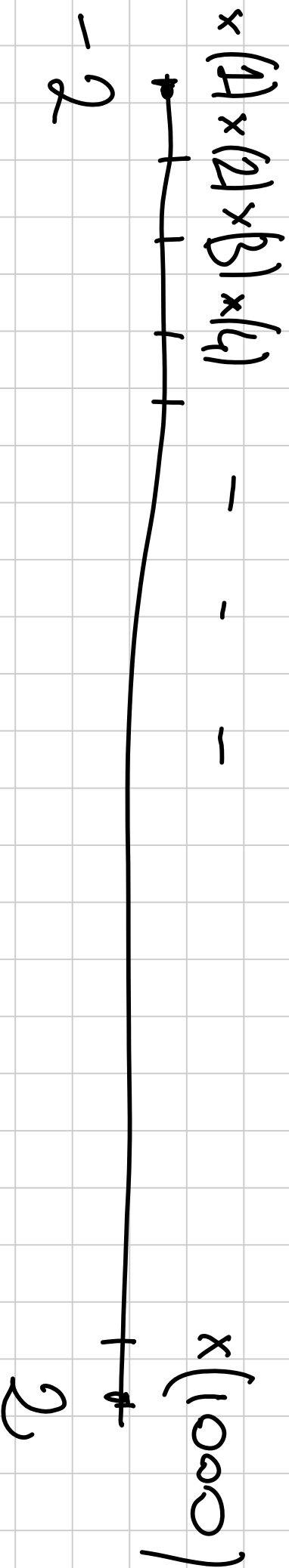
$$y(k) = k^2;$$

end

$$\begin{aligned} \{x(1) &= 1; \\ y(1) &= 1 \wedge 2; \\ x(2) &= 2; \\ y(2) &= 2 \wedge 2; \\ &\vdots \end{aligned}$$

$$\begin{aligned} \{x(10) &= 10; \\ y(10) &= 10 \wedge 2; \end{aligned}$$

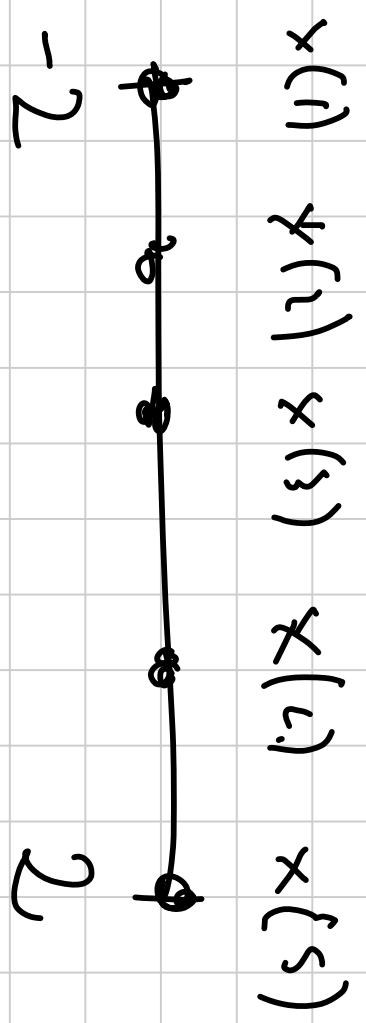
1000 Punkti nell'intervallo $(-2, 2]$:



distanza tra un punto e il successivo:

$$\frac{999}{1000} A = 4$$

$$d = \frac{4}{1000 \cdot 999}$$



$$\left\{ \begin{array}{l} x(1) = -2 + \frac{4}{999} \\ x(2) = -2 + \frac{4}{999} \\ x(3) = -2 + 2 \cdot \frac{4}{999} \\ x(4) = -2 + 3 \cdot \frac{4}{999} \\ \vdots \end{array} \right.$$

for k=1:1000

$$x(k) = -2 + (k-1) \cdot \frac{4}{999}$$

$$y(k) = x(k)^3 - x(k) + 1;$$

end

$$x(1000) = -2 + 999 \cdot \frac{4}{999}$$

= +2 😊

