ORTOGONALIZACIÓN.

Del modelo y = b0 + b1 log(x).

```
N= length(y),
A= [ones(N,1), log(x)']
mat= A'*A
vec= A'*y'
sol = mat\vec.
```

function [ ] = ...(x,y) ⟶ A[modelo]

Del modelo y = C*exp(-t) + D*exp(-2t).

```
N=length(y),
A= [exp(-x)', exp(-2*x)']
mat= A'*A
vec= A'*y'
sol= mat\vec.
- - - - - - - - - - - - - - - - - - - - - - - -
x1= linspace(x(1), x(end));
y1= sol(1)*exp(-x1) + sol(2)*exp(-2*x1);
plot (x, y, '*', x1, y1).
```

metes a x, y como vector (los declaras).
x=[···] , y=[···]

LINEALIZACIÓN.

Del modelo y = mx + b → y = b * mx,
Y = a_0 + a_1x

```
N= length(x);
mat= [N        sum(x);
      sum(x)   sum(x.^2)]
vec= [sum(y); sum (x.*y)]
sol= mat\vec.
- - - - - - - - - - - - - - - -
x1 = linspace(x(1), x(end));
y1 = sol(1) + sol(2)*x1;
plot (x, y, '*', x1, y1).
```

Del modelo P= b*exp(ah).

```
N= length(x);
mat= [N        sum(x);
      sum(x)   sum(x.^2)]
vec= [sum(log(y)); sum(x.*log(y))]
- - - - - - - - - - - - - - - - - - -
b= exp(sol(1));
x1 = linspace(x(1), x(end));
y1 = b* exp(sol(2)*x1);
plot (x, y, '*', x1, y1).
```

- Del modelo f(x) = a1 + a2*exp(x) + a3 + x.*exp(x).

```
n = length(x).
A = [ones(n,1), exp(x)', (x.*exp(x))']
mat= A'*A
vec= A'*y'
sol = mat\vec.
```

- Dadas cantidades:

0	0.25	1	2	3	4	5	6	7	8	
7.5	5.3	5.6	11.9	21	40	64	90	125	155	= dat

```
x= dat(1,:);    → datos de x
y= dat(2,:);    → datos de y
n= length(x)
A= [ones(n,1), (x.^2)', exp(-x)']
mat= A'*A
vec= A'*y'
sol= mat\vec
- - - - - - - - - - - - - - - - - - - - - - - -
a= sol(1); b= sol(2); c= sol(3);
x1= linspace(x(1), x(end));
y1= a + b*x1.^2 + c*exp(-x1);
plot (x, y, 'o', x1, y1), grid.
```

- Del modelo y = ax^b

```
N= length(y);
mat= [N             sum(log(x));
      sum(log(x))   sum(log(x).^2)]
vec= [sum(log(y)); sum(log(x).*log(y))]
sol= mat\vec.
- - - - - - - - - - - - - - - - - - - - - -
b = exp(sol(1))
x1 = linspace(x(1), x(end));
y1 = b*x1.^sol(2);
plot (x, y, '*', x1, y1).
```

- Modelo hiperbólico.

```
N= length(y);
mat= [N           sum(1./x);
      sum(1./x)   sum(1./(x.^2))]
vec= [sum(1./y); sum(1./(x.*y))]
sol= mat\vec.
- - - - - - - - - - - - - - - - - - - - - - -
x1 = linspace(x(1), x(end));
y1 = x1./(sol(2) + sol(1)*x1);
plot (x, y, 'o', x1, y1).
```