METODO DEL PUNTO FIJO

```
clc, clear;
format long g;
syms x;
```

INGRESAR EL X DE DATO INFERIOR:

```
Lim_inf = 0;
```

INGRESAR EL X DE DATO SUPERIOR:

```
Lim_sup = pi/2;
```

INGRESAR LA TOLERACIA:

```
Tol     = 0.0001;
```

INGRESAR EL NUMERO DE ITERACIONES:

```
Num_it  = 20;
```

INGRESAR LA ECUACÍON x=g(x):

```
f_x= cos(x);
```

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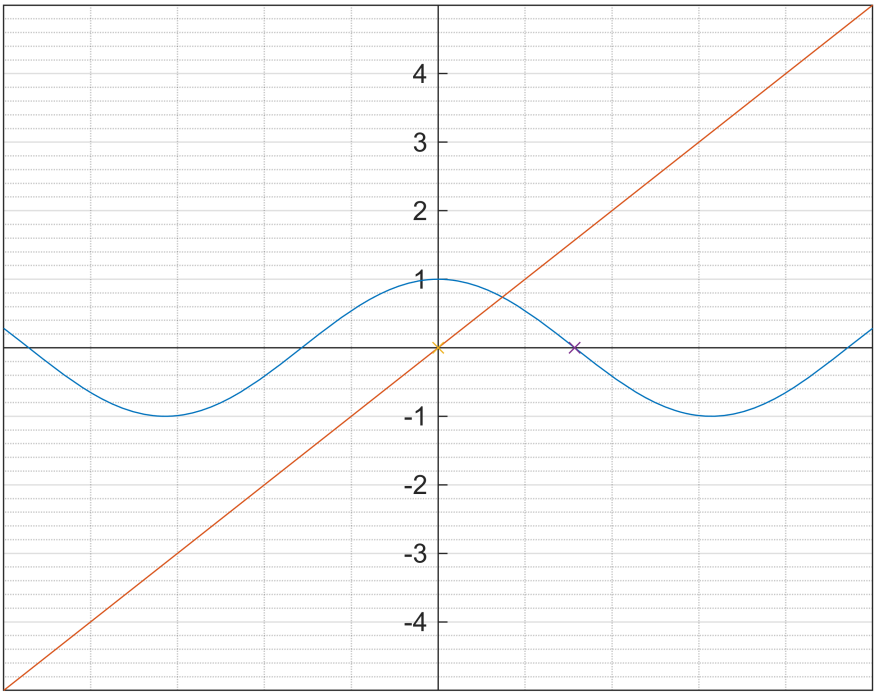
```
% n=[1 2];
% a_n=[1 2];
% b_n=[1 2];
% p_n=[1 2];
% f_n=[1 2];
n=[1 2];
x_0=[1 2];
g_x=[1 2];
error_=[0 2];
y=x;

fplot(f_x);
hold on;
fplot(y);
plot(Lim_inf,0,'x');
plot(Lim_sup,0,'x');
hold off;
grid on;
```

```
grid minor;
ax = gca;
ax.XAxisLocation = 'origin';
ax.YAxisLocation = 'origin';
```




```
f= @(x) eval(f_x);
i=1;
p_0=Lim_inf+(Lim_sup-Lim_inf)/2;
while(i<Num_it)
    p=f(p_0);

    n(i)=i;
    x_0(i)= p_0;
    g_x(i)=f(p_0);
    error_(i)= p-p_0;

    if((p_0==f(p_0)))
        disp(p);
        break;
    else
        p_0=p;
    end
    i=i+1;
end


tabla=[n' x_0' g_x' error_'];
```

```
NUM_IT=n';
x_=x_0';
g__x=g_x';
error__=error_';
Resultados = table(NUM_IT,x_,g__x,error__)
```

Resultados = 19×4 table

	NUM_IT	x_	g__x	error__
1	1	0.7853981633...	0.7071067811...	-0.078291382210...
2	2	0.7071067811...	0.7602445970...	0.0531378158890...
3	3	0.7602445970...	0.7246674808...	-0.035577116186...
4	4	0.7246674808...	0.7487198857...	0.024052404900358
5	5	0.7487198857...	0.7325608445...	-0.016159041197...
6	6	0.7325608445...	0.7434642113...	0.0109033667230...
7	7	0.7434642113...	0.7361282565...	-0.007335954814...
8	8	0.7361282565...	0.7410736870...	0.0049454305828...
9	9	0.7410736870...	0.7377441589...	-0.003329528091...
10	10	0.7377441589...	0.7399877647...	0.0022436058032...
11	11	0.7399877647...	0.7384768087...	-0.001510956071...
12	12	0.7384768087...	0.7394947711...	0.0010179624074...
13	13	0.7394947711...	0.7388091341...	-0.000685636947...
14	14	0.7388091341...	0.7392710213...	0.0004618871460...
15	15	0.7392710213...	0.7389599039...	-0.000311117353...
16	16	0.7389599039...	0.7391694833...	0.0002095793651...
17	17	0.7391694833...	0.7390283113...	-0.000141172015...
18	18	0.7390283113...	0.7391234079...	9.50966035909717e-05
19	19	0.7391234079...	0.7390593503...	-6.40575642971708e-05

```
xlswrite('RESULTADOS.xlsx',tabla)
```