```matlab
xk=[-3  -2  -1  0   1   2   3]';
yk=[1.2 0.7 0.6 1.0 1.9 3.5 1.4]';


xx=(-pi:0.001:pi);  % Para graficas

apdo='f';
switch(apdo)

    case 'a' %Interpolacion
     chosen=[1 4 7];
     H=[xk(chosen).^0 sin(xk(chosen)) cos(xk(chosen))]; v=yk(chosen);
     c=H\v;
     u=c(1)+c(2)*sin(xx)+c(3)*cos(xx);
     plot(xk,yk,'kx',xx,u);

     uk = c(1)+c(2)*sin(xk)+c(3)*cos(xk);
     res = yk - uk, norm(res)

    case 'b'  % Ajuste directo
      H=[xk.^0 sin(xk) cos(xk)]; v=yk;  % Uso todos
      c=H\v;
      u=c(1)+c(2)*sin(xx)+c(3)*cos(xx);
      plot(xk,yk,'kx',xx,u);

      res=v-H*c, norm(res)

    case 'c'  % Ajuste con 1/()
      H=[xk.^0 sin(xk) cos(xk)]; v=1./yk;  % Uso todos
      c=H\v
      u=1./(c(1)+c(2)*sin(xx)+c(3)*cos(xx));
      plot(xk,yk,'kx',xx,u);
      uk = 1./(c(1)+c(2)*sin(xk)+c(3)*cos(xk));
      res = yk - uk, norm(res)

    case 'd' % Condicion Previa
      keep=[1 2 3 5 6 7];
      xk2=xk(keep); yk2=yk(keep);
      H=[sin(xk2) cos(xk2)-1]; v=(1./yk2)-1; c=H\v;
      B=c(1); C=c(2);   A=1-C;
      fprintf('A=%.2f B=%.2f C=%.2f\n',A,B,C);
      u3=1./(A+B*sin(xx)+C*cos(xx));
      hold on; plot(xx,u3,'b','LineWidth',2); hold off

    case 'e'  % Pesos
      H=[xk.^0 sin(xk) cos(xk)]; v=1./yk;
      W=diag([0.001 0.001 0.001 1 0.001 0.001 0.001]);
      c= (H'*W*H)\(H'*W*v)
      u=1./(c(1)+c(2)*sin(xx)+c(3)*cos(xx));
      plot(xk,yk,'kx',xx,u);
```

```matlab
    case 'f'
      X0=[0.94 -0.65 0.16]; error_ajuste(X0)
      X=fminsearch(@error_ajuste,X0);
      error_ajuste(X)

end


function e=error_ajuste(X)
  xk=[-3    -2  -1  0   1   2   3]';
  yk=[1.2   0.7 0.6 1.0 1.9 3.5 1.4]';
  A=X(1);B=X(2);C=X(3);
  uk = 1./(A+B*sin(xk)+C*cos(xk));
  res = yk - uk; e=norm(res);
end
```