

```
% triangle1.m 25-sep-08
% observation only solution of nonlinear
% triangle problem

degrad=57.29577951;
l=[10.1;7.4;12.5;36.22/degrad;53.78/degrad];
l0=l;
old_l0=l0;
sig=[0.1;0.1;0.1;0.005;0.005];
sig0=0.1;
wd=[sig0^2/sig(1)^2; sig0^2/sig(2)^2; sig0^2/sig(3)^2;
     sig0^2/sig(4)^2; sig0^2/sig(5)^2];
W=diag(wd);
Q=inv(W);
track_len=zeros(10,1);
track_vtwv=zeros(10,1);

keep_going=1;
n_iter=1;
while((keep_going == 1) & (n_iter <= 10))
    n_iter
    A=[2*l0(1)  2*l0(2)  -2*l0(3)  0  0;
       0        0        0        1  1;
       l0(2)/(l0(1)^2 + l0(2)^2)  -l0(1)/(l0(1)^2 + l0(2)^2)  0  1  0];
    F=[l0(1)^2 + l0(2)^2 - l0(3)^2;
       l0(4) + l0(5) - pi/2;
       l0(4) - atan(l0(2)/l0(1))];
    f=-F - A*(l-l0);
    Qe=A*Q*A';
    We=inv(Qe);
    k=We*f;
    v=Q*A'*k;
    l0=l+v;
    delta_l=l0 - old_l0;
    %delta_l
    old_l0=l0;
    if(all(abs(delta_l) < 1.0e-07))
        keep_going=0;
    end
    track_len(n_iter)=abs(delta_l(1)) + abs(delta_l(2)) + abs(delta_l(3));
    track_vtwv(n_iter)=v'*W*v;
    n_iter=n_iter+1;
end

n_iter=n_iter-1;
delta_l
v
l0
```