Defuzzyification

```
a=10; b=20;
c=60; d=95;
x=1:1:100;
for x1=1:100
    e=(x1-a)/(b-a);
    f=(d-x1)/(d-c);
    A=[e 1 f];
    m2(x1)=max(min(A),0);
end
figure
plot(m2)
for x1=1:100
    m1(x1)=max(min(((x1-a)/(b-a)),((c-x1)/(c-b))),0);
end
figure
plot(m1)
m4=max(0.5*m2,0.7*m1);
figure
plot(x,m4,'linewidth',1);
set(gca,'YLim',[-1 1],'YTick',[0 .5 1]);
c=1;
while(c==1)
disp(sprintf('\n********** Methods for Defuzzification **********\n1)Centroid
method\n 2)Mean-of-Maximum methods\n '));
a=input('Select any method(1 - 2): ');
if(a==1)
    area=sum(m4);
    if(area==0)
        disp('Error in the input');
    else
        x1=sum(m4.*x)/area;
    end
    h1 = line([x1 x1],[-0.2 1.2],'Color','k');
    t1 = text(x1,-0.2,'centroid','FontWeight','bold');
    elseif(a==2)
    x2 = mean(x(find(m4==max(m4))));
    h2 = line([x2 x2],[-0.7 1.2],'Color','k');
    t2 = text(x2,-0.7,'MOM','FontWeight','bold');
end
cn=input('Do you want to continue?(1/0)');
if(cn==0)
    c=0;
end
end
```

OUTPUT:

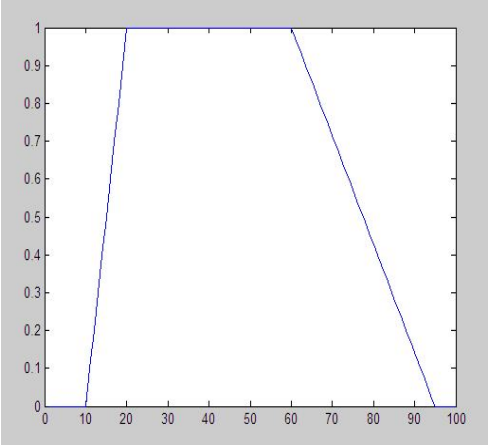

Fig1:Trapezoidal membership function

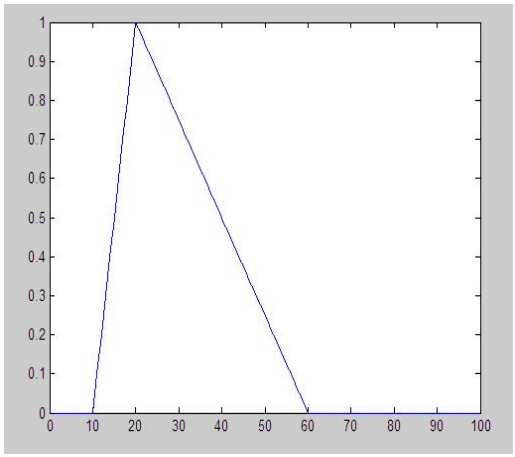

Fig2:Triangular membership function

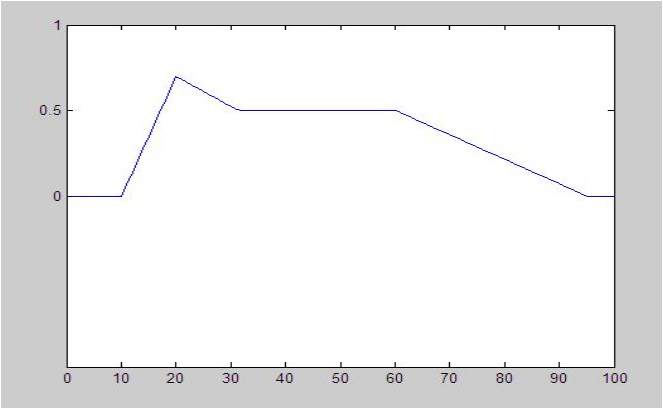

Fig3:Min-Max Output of Membership function

********** Methods for Defuzzification **********

1)Centroid method

2)Mean-of-Maximum methods

Select any method(1 - 2): 1

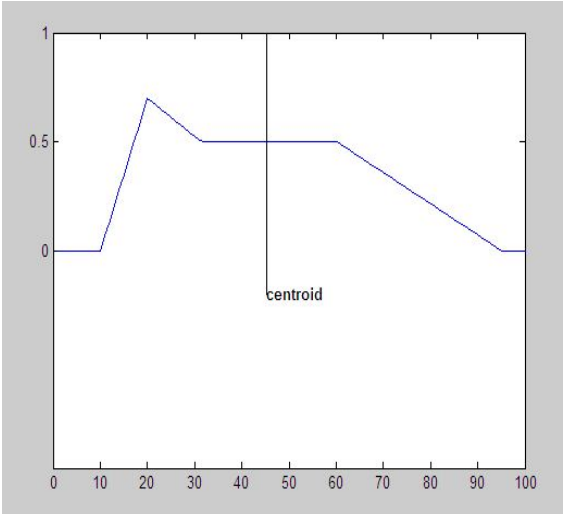

Fig4: output using centroid method

Do you want to continue?(1/0)1

********** Methods for Defuzzification **********

1)Centroid method

2)Mean-of-Maximum methods

Select any method(1 - 2): 2

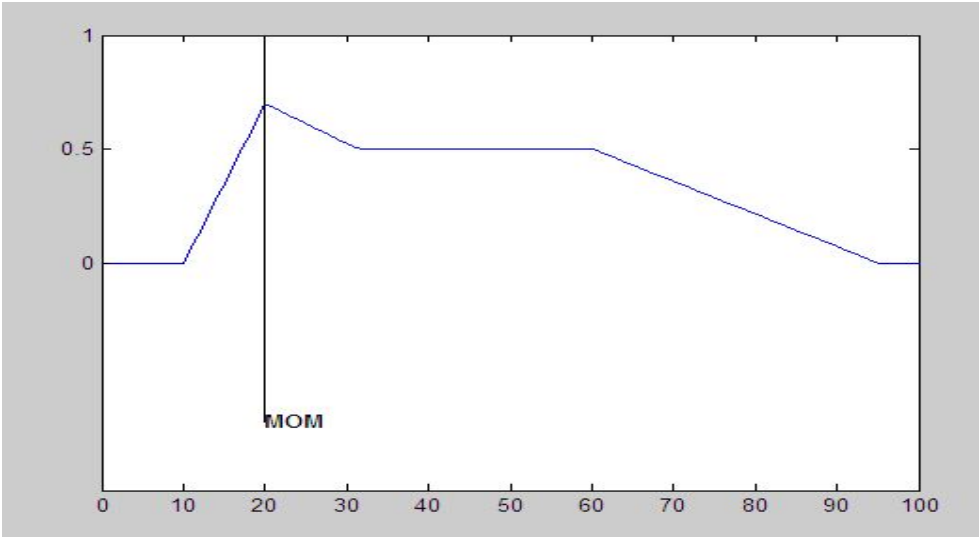

Fig5: output using Mean-of-Maximum methods

Do you want to continue?(1/0)0

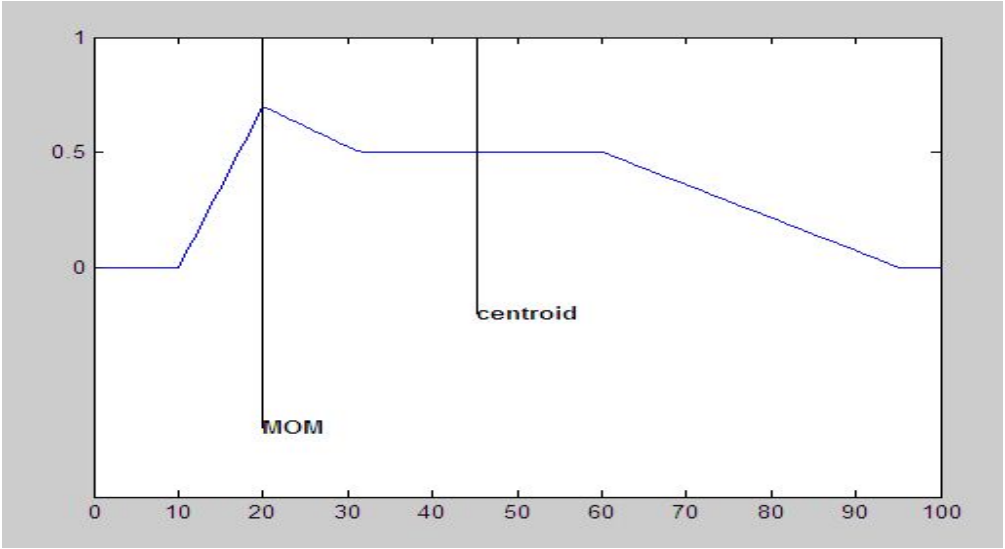

Fig6:final output with centroid and min of max method