**PROBLEM:**  Use the following singularity function and the expressed function of singularity to solve for the displacement of a beam 10 feet long. X = 0 at the left end.

(1)

(2)

**SOLUTION**:

Here is my script:

%% Problem 6(Book 2.22)

% Creates of a plot of displacement versus distance along a simply supported beam.

% Clears all windows, commands, and variables

clear all; close all; clc;

%Set starting variables and constants

x = 1;

y(11) = 0;

while x<=10

if x<=0

a0 = 0;

else

a0 = x^4;

end

if x<=5

a5 =0;

else

a5 = (x-5)^4;

end

if x<=8

a8 = 0;

else

a8 = (x-8)^3;

end

if x<=7

a7 = 0;

else

a7 = (x-7)^2;

end

y(x+1) = -5/6\*(a0-a5)+15/6\*a8+75\*a7+57/6\*x^3-238.25\*x;

x= x+1;

end

xplot = 0:10;

plot(xplot,y); xlabel('Distance along beam (ft.)'); ylabel('Displacemnt (ft.)'); title('Displacement of Simply Supported Beam');

And its output:

