```
function ME598_GrpR1_FwdKin = params(angles)
    clc
    %angles = [90 90 90 80 90]
    %test to see angles in range
    if(angles(1)>130 || angles(1)<-130) || (angles(2)>95 || angles(2)<5) ||
(angles(4)>85 || angles(4)<-5) || (angles(5)>90 || angles(5)<-90)
        disp('Invalid angle(s) inputted');
        return
    end

    %since the sin and cosine functions on matlab are in radians have to convert
from degrees to radians
    anglesrad = angles * (pi/180);

    %Homogenous matrices for frames i relative to i-1
    A1 = [[cos(anglesrad(1)) 0 sin(anglesrad(1)) 0];[sin(anglesrad(1)) 0 -
cos(anglesrad(1)) 0];[0 1 0 10.5];[0 0 0 1]];
    A2 = [[cos(anglesrad(2)) -sin(anglesrad(2)) 0 13.5*cos(anglesrad(2))];
[sin(anglesrad(2)) cos(anglesrad(2)) 0 13.5*sin(anglesrad(2))];[0 0 1 0];[0 0 0
1]];
    A3 = [[cos(anglesrad(3)) -sin(anglesrad(3)) 0 16*cos(anglesrad(3))];
[sin(anglesrad(3)) cos(anglesrad(3)) 0 16*sin(anglesrad(3))];[0 0 1 0];[0 0 0 1]];
    A4 = [[cos(anglesrad(4)) 0 sin(anglesrad(4)) 5.5*cos(anglesrad(4))];
[sin(anglesrad(4)) 0 -cos(anglesrad(4)) 5.5*sin(anglesrad(4))];[0 1 0 0];[0 0 0
1]];
    A5 = [[cos(anglesrad(5)) -sin(anglesrad(5)) 0 0];[sin(anglesrad(5))
cos(anglesrad(5)) 0 0];[0 0 1 7];[0 0 0 1]];

    %Homogeous matrices for frames i relative to 0
    A02 = A1*A2;
    A03 = A02*A3;
    A04 = A03*A4;
    A05 = A1*A2*A3*A4*A5;

    %Position of each joint
    L1Pos = A1(1:3,4);
    L2Pos = A02(1:3,4);
    L3Pos = A03(1:3,4);
    L4Pos = A04(1:3,4);
    L5Pos = A05(1:3,4);

    %theoretical final location;
    coord = dobotPlot(angles,1,1);

    fprintf('Calculated final location: p = (%.4f,%.4f,%.4f)\n',
L5Pos(1),L5Pos(2),L5Pos(3));
    fprintf('Theoretical final location: p = (%.4f,%.4f,%.4f)\n',
coord(1),coord(2),coord(3));
```