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%first taking the radius from the user
r = input('pls enter the radius of circle');
a = input('now inter the x-coordinate');
b = input('now inter the y=coordinate');

%th = linspace(0,2*pi,1000);
th = 0:0.1:2*pi;

x = a + r*cos(th);
y = b + r*sin(th);
plot(x,y)
title('Circle drawn by Deepak Bansal Roll no. UE219017')
xlabel('X-axis')
ylabel('Y-axis')

// pentagon

centerX = input('enter the X-coordinate of the center');
centerY = input('enter the Y-coordinate of the center');
sideLength = input('enter the raduis of circle that circumscribing the pentagon');
% Calculate the coordinates of the five vertices of the pentagon
t = 2*pi/5; % Angle between each vertex (72 degrees)
pentagonVerticesX = centerX + sideLength * cos(0:t:2*pi);
pentagonVerticesY = centerY + sideLength * sin(0:t:2*pi);

plot(pentagonVerticesX, pentagonVerticesY, 'b', 'LineWidth', 1);

title(' Pentagon plot by UE219017 Deepak bansal ');
xlabel('X-axis');
ylabel('Y-axis');
grid on;

// cyclinder
% Define the range of parameters
u = linspace(0, 2*pi, 100); % Example range for u
v = linspace(0, 1, 100); % Example range for v

% Define the base curve parametric equation
P_base = @(u) [cos(u); zeros(size(u)); sin(u)];

% Define the cylinder axis points
P1 = [0; 0; 0]; % Modify as needed
P2 = [4; 5; 6]; % Modify as needed

% Calculate the direction vector
d = P2 - P1;

% Generate points on the cylinder's surface
points = zeros(3, numel(u), numel(v));
for i = 1:numel(u)
    for j = 1:numel(v)

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        points(:, i, j) = P_base(u(i)) + v(j) * d;
    end
end

% Reshape the points for plotting
[X, Y, Z] = meshgrid(u, v, v);
X = squeeze(points(1, :, :));
Y = squeeze(points(2, :, :));
Z = squeeze(points(3, :, :));

% Plot the cylinder
figure;
surf(X, Y, Z);
xlabel('X');
ylabel('Y');
zlabel('Z');
title('Tabulated Cylinder plot by Deepak bansal having Roll no. UE219017');

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// ellipse

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%taking input from user for the ellipse
a=input('length of semi- major axis of the ellipse');
b=input('length of semi - minor axis of the ellipse');
h=input('X coordinate of the centre of the ellipse');
k=input('Y coordinate of the centre of the ellipse');

%Calculating coordinated of ellipse
ang=0:0.1:2*pi;
x=h+a*cos(ang);
y=k+b*sin(ang);

%Ploting ellipse on graph
plot(x,y);
axis equal
title('PLOT OF ELLIPSE by UE219017 Deepak Bansal');
xlabel('x axis');
ylabel('y axis');

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