Contents

```
clc;
clear;
close all;
```

Euler Angle & Rotation Matrix

```
roll = pi/3;
pitch = -pi/4;
yaw = pi/2;

R = eul2rotm([yaw, pitch, roll], 'ZYX');
disp('Rotation Matrix R:');
disp(R);
```

```
Rotation Matrix R:
   0.000000000000000  -0.500000000000000   0.866025403784439
   0.707106781186548  -0.612372435695794  -0.353553390593274
   0.707106781186547   0.612372435695795   0.353553390593274
```

p & p1

```
p = [1; 2; 3];
p1 = R * p;
disp('Coordinates of p1:');
disp(p1);
```

```
Coordinates of p1:
   1.598076211353316
  -1.578298261984863
   2.992511824357958
```
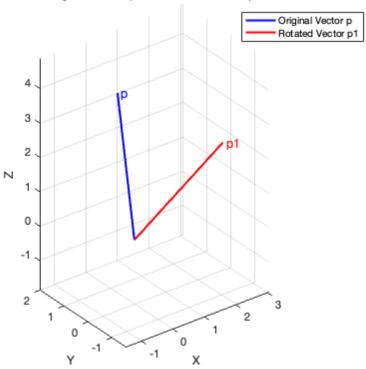
Plot

```
figure;
hold on;

plot3([0 p(1)], [0 p(2)], [0 p(3)], 'b', 'LineWidth', 2);
text(p(1), p(2), p(3), ' p', 'FontSize', 12, 'Color', 'b');

plot3([0 p1(1)], [0 p1(2)], [0 p1(3)], 'r', 'LineWidth', 2);
text(p1(1), p1(2), p1(3), ' p1', 'FontSize', 12, 'Color', 'r');

axis equal;
grid on;
xlabel('X');
```

```
ylabel('Y');
zlabel('Z');
title('Original Vector p and Rotated Vector p1');
legend('Original Vector p', 'Rotated Vector p1');
view(3);
hold off;
```

Original Vector p and Rotated Vector p1