

```
1 clc;
2
3 nu = 0:0.001:2*pi;
4
5 a1 = 1;
6 e1 = 0;
7 p1 = a1 * (1 - e1^2);
8 r_nu1 = p1 ./ (1 + e1 .* cos(nu));
9
10 x1 = r_nu1.*cos(nu);
11 y1 = r_nu1.*sin(nu);
12
13 %-----%
14
15 a2 = 1;
16 e2 = 0.75;
17 p2 = a2 * (1 - e2^2);
18 r_nu2 = p2 ./ (1 + e2 .* cos(nu));
19
20 x2 = r_nu2.*cos(nu);
21 y2 = r_nu2.*sin(nu);
22
23 %-----%
24
25 a3 = -0.5;
26 e3 = 2;
27 p3 = a3 * (1 - e3^2);
28 r_nu3 = p3 ./ (1 + e3 .* cos(nu));
29
30 x3 = r_nu3.*cos(nu);
31 y3 = r_nu3.*sin(nu);
32
33
34 fig1 = figure ("Name","Different Pathes for Conical Cross-✓
Section",'Position',[100 350 900 500]);
```

```

35 hold all
36 grid on
37 grid minor
38 axis equal
39 ylim([-2,2])
40
41 plot (x1, y1 , 'LineWidth',2, 'Color', "#7E2F8E")
42 plot (x2, y2 , 'LineWidth',2, 'Color', "#0072BD")
43 plot (x3, y3 , '.', 'LineWidth',2, 'Color', "#77AC30")
44
45 title ("Different Pathes for Conical Cross-Section");
46 subtitle("Almog Dobrescu 214254252 & Ronel Nawy 325021152")
47 ylabel("y(ν) [יחידת אורך]")
48 xlabel("x(ν) [יחידת אורך]")
49 grid on
50 grid minor
51 legend({'a = 1 | e = 0', 'a = 1 | e = 0.75', 'a = -0.5 | e = 2'}, 'FontSize',11 , 'Location','northeast')
52 %exportgraphics(fig1, 'grap1.png', 'Resolution',1200);
53
54 %
-----
-----%
55
56 fig2 = figure ("Name","r as a function of ν", 'Position',
[300 350 900 500]);
57 hold all
58 grid on
59 grid minor
60 axis equal
61 ylim([-3,3])
62
63 plot (nu, r_nu1 , 'LineWidth',2, 'Color', "#7E2F8E")
64 plot (nu, r_nu2 , 'LineWidth',2, 'Color', "#0072BD")
65 plot (nu, r_nu3 , '.', 'LineWidth',2, 'Color', "#77AC30")

```

```
66
67 title ("r as a function of  $\nu$ ");
68 subtitle("Almog Dobrescu 214254252 & Ronel Nawy 325021152")
69 ylabel("r( $\nu$ ) [יחידת אורך]")
70 xlabel(" $\nu$  [rad]")
71 grid on
72 grid minor
73 legend({'a = 1 | e = 0', 'a = 1 | e = 0.75', 'a = -0.5 | e✓
= 2'}, 'FontSize', 11, 'Location', 'northeast')
74 %exportgraphics(fig2, 'grap2.png', 'Resolution', 1200);
```