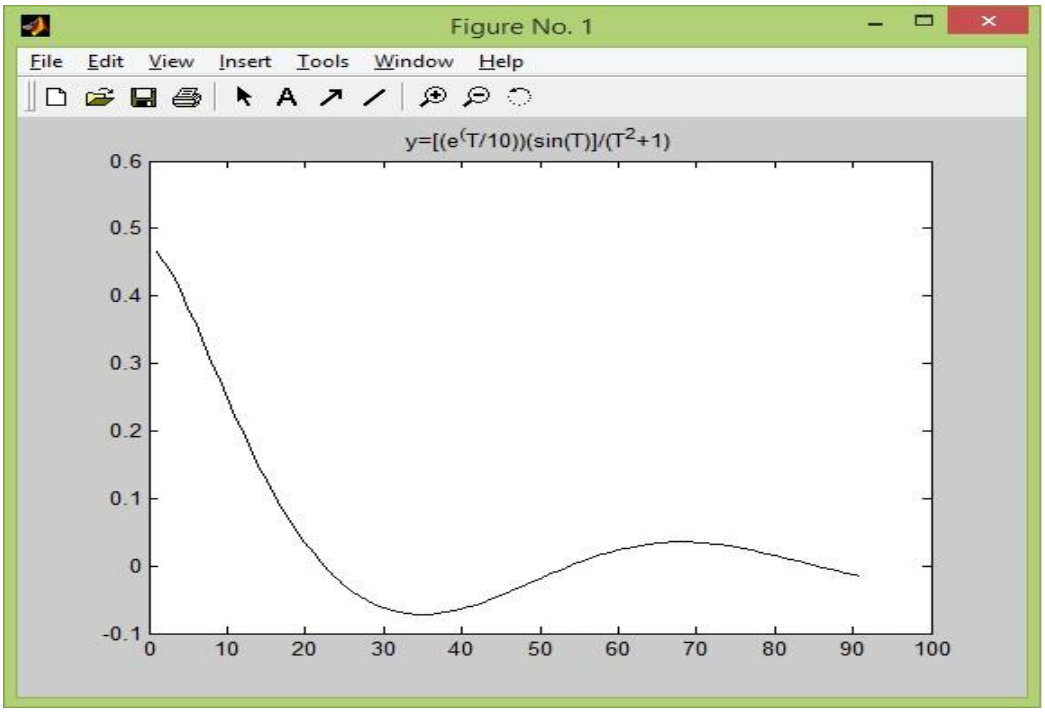
Exercise 1

```
Theta=[0;pi/4;pi/2;3*pi/4;5*pi/4];
r = 2;
x = (r*cos(Theta))
x =
    2.0000
    1.4142
    0.0000
   -1.4142
   -1.4142
y = (r*sin(Theta))
y =
         0
    1.4142
    2.0000
    1.4142
   -1.4142
radius = sqrt(x.^2+y.^2)
radius =
     2
     2
     2
     2
     2
```

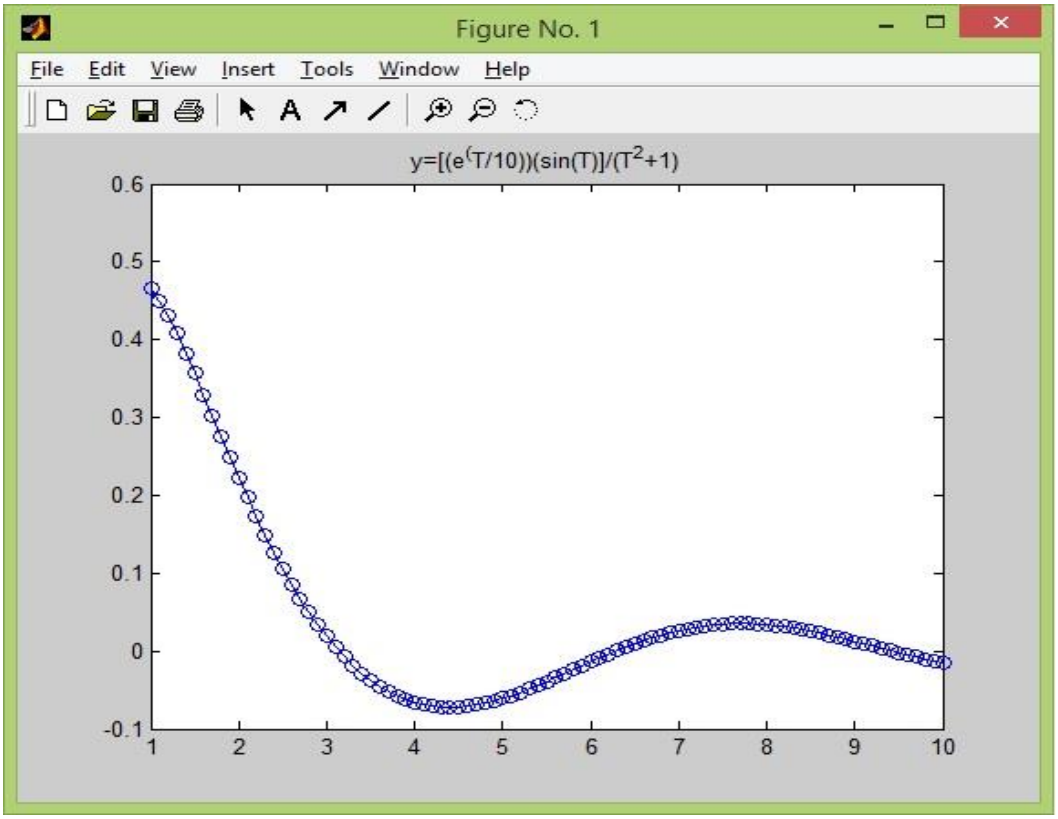
Exercise 2A

```
T = linspace(1,10,91);
y = (exp((T./10)).*sin(T))./(T.^2+1);
plot(y,'k')
title('y=[(e^(T/10))(sin(T)]/(T^2+1)')
```



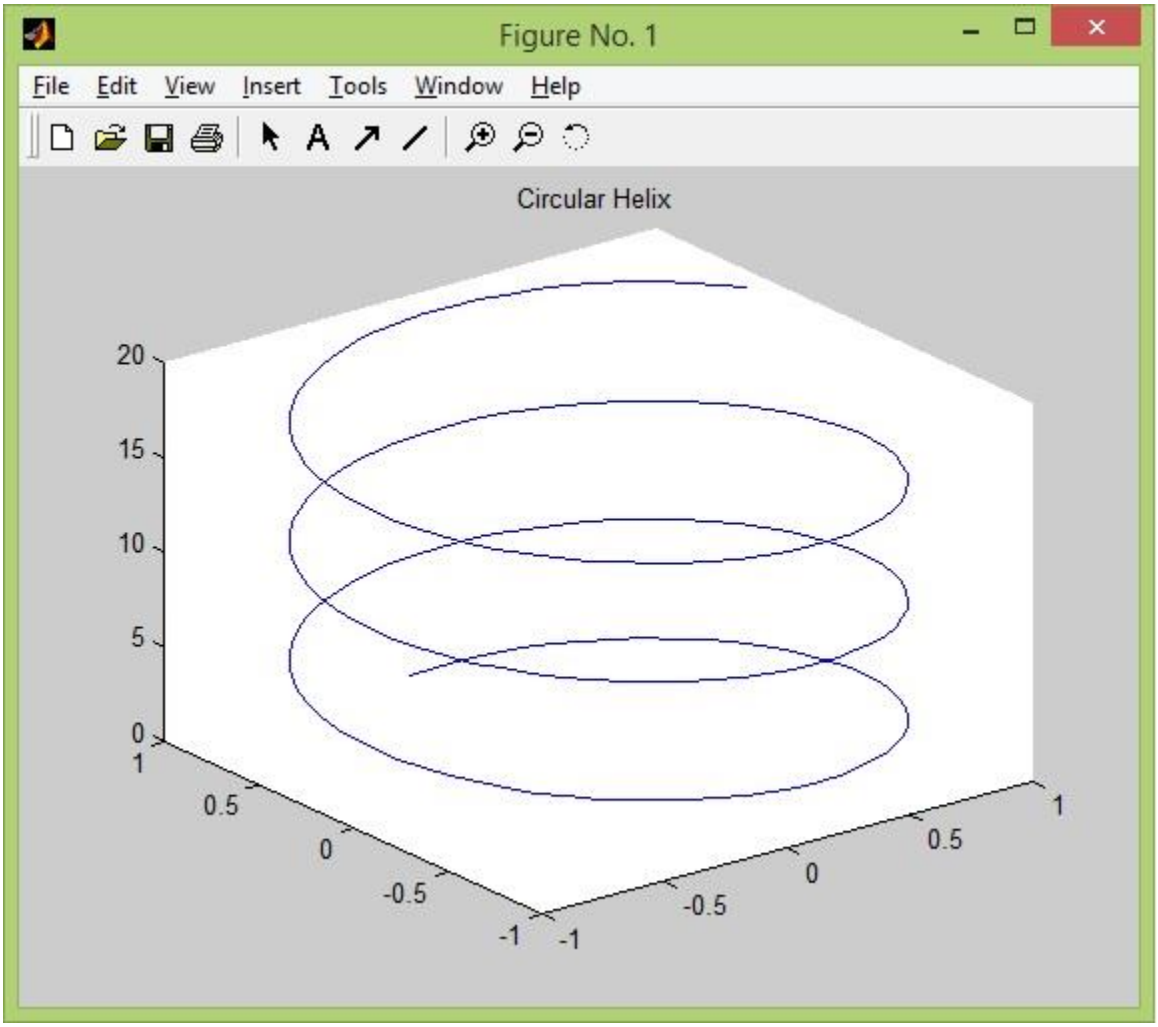
Exercise 2B

```
T = linspace(1,10,91);
y = (exp((T./10)).*sin(T))./(T.^2+1);
plot(T,y,'o-')
title('y=[(e^(T/10))(sin(T)]/(T^2+1)')
```



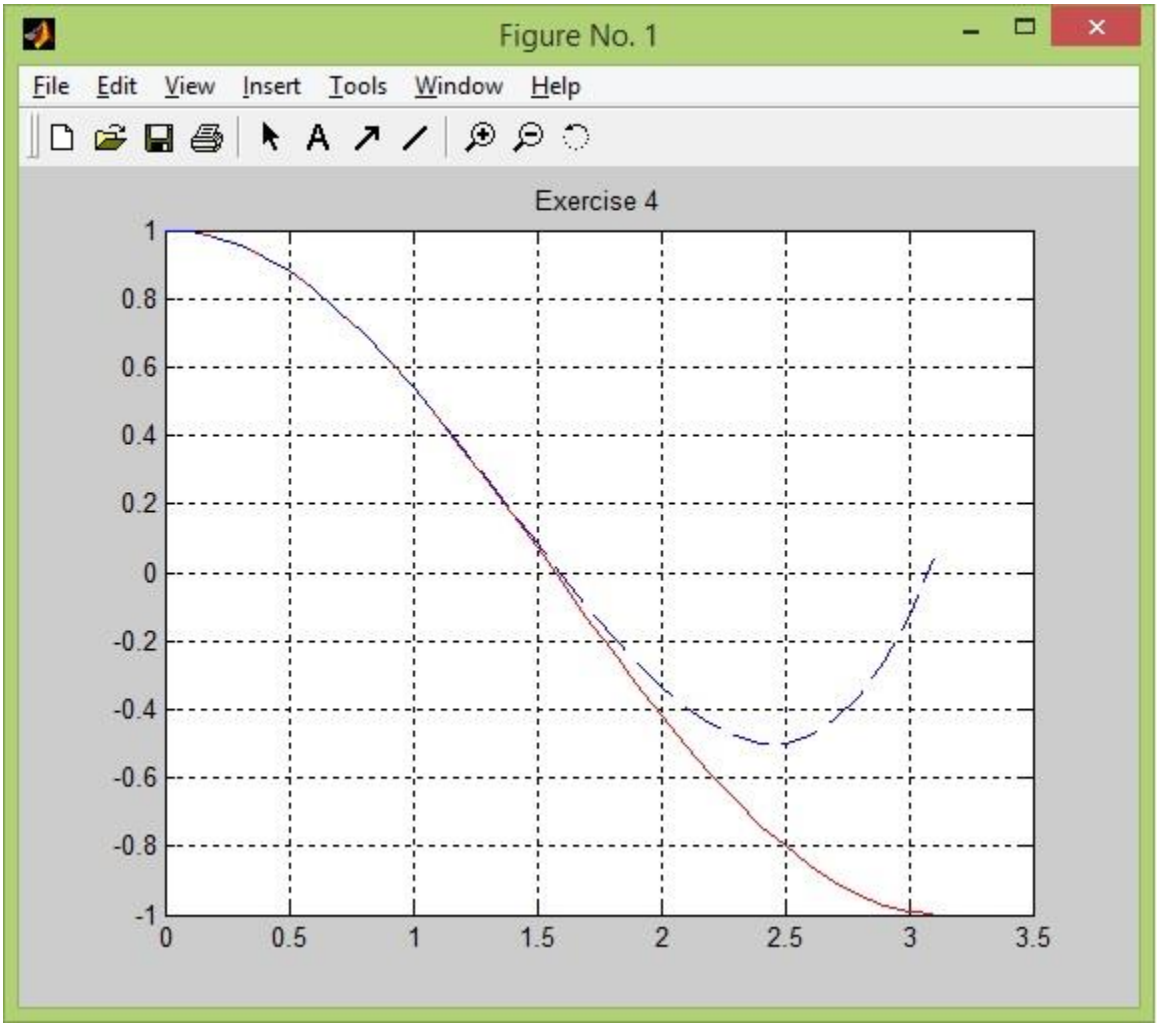
Exercise 3

```
T = 0:0.1:20;
x = sin(T);
y = cos(T);
z = T;
plot3(x,y,z)
title('Circular Helix')
```



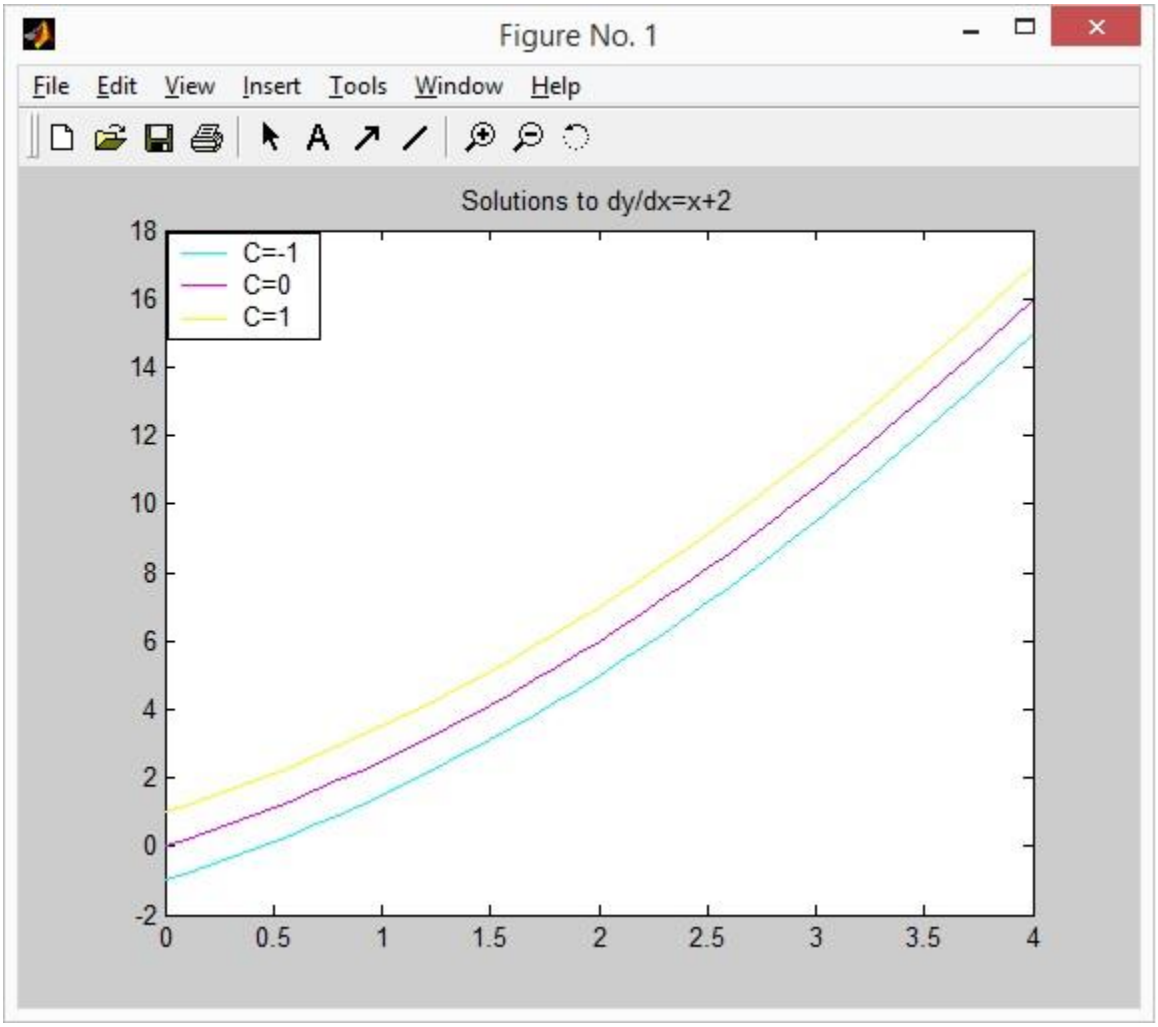
Exercise 4

```
x = 0:0.1:pi;
y = cos(x);
z = (1-((x.^2)/2)+((x.^4)/24));
plot(x,y,'r',x,z,'--')
grid on
title('Exercise 4')
```



Exercise 5

```
function ex5
x=(0:0.1:4);
y1=f(x,-1);
y2=f(x,0);
y3=f(x,1);
plot(x,y1,'c',x,y2,'m',x,y3,'y');
title('Solutions to dy/dx=x+2');
legend('C=-1','C=0','C=1')
%---------------------------------------
function [ y ] = f( x,C )
y=(x.^2)/2+2*x+C;
end
```



Exercise 6A

```
f=inline('x^3+(y*exp(x))/(x+1)','x','y')
f =
     Inline function:
     f(x,y) = x^3+(y*exp(x))/(x+1)
f(2,-1)
ans =
    5.5370
```

Exercise 6B

```
f(2,-1)
ans =
    5.5370
```

```
function [ dydx ] = f( x,y )
dydx=x.^3+(y*exp(x))/(x+1);
```