EXPT.NO.5

Title: Solution of first order differential equation & plotting the graph.
Differential of first order gives the solution containing one arbitrary constant. This constant if some initial condition is given

```
%%Matlab: Solution of first order differential equation & Plotting
the Solution graph

%% Ex.01
clc
clear
syms t y(t)
eqn = diff (y,t, 1)==t*y;
y(t) = dsolve(eqn)
```

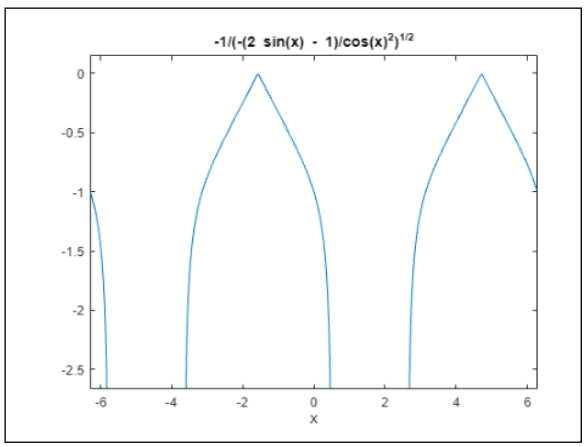
OUTPUT:

$$y(t) = C_1 e^{\frac{t^2}{2}}$$

```
%% Ex.02
clc
clear
syms y(x)
eqn = (diff(y,x,1) + y*tan(x) == y^3*sec(x));
cond = y(0)==-1;
y(x) = dsolve(eqn,cond);
sol = simplify(y(x));
y(x) =sol
ezplot(sol);
```

OUTPUT:

$$y(x) = -\frac{1}{\sqrt{-\frac{2\sin(x)-1}{\cos(x)^2}}}$$



```
%% Ex-03
clc
clear
syms y(x)
Dy = diff(y);
eqn =diff(y,x)==2*y;
cond = y(0)==2;
y(x) = dsolve(eqn,cond);
sol = simplify(y(x));
y(x) =sol
ezplot(sol);
```

OUTPUT:

$$y(x) = 2\,e^{2x}$$