정보통신 수학 및 실습
Lab assignment

학번 :	2016110056	2012112130
이름 :	박승원	노희승
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dongguk
UNIVERSITY

Chapter 5 Lab Assignment

1. **Let** $y = 10x^4$

a) Find y' using the numeric tools of MATLAB.

b) Plot y and y' when -1 ¡ x ¡ 1 using a single plot command.

2. **Let** $z = y dx = x^2 e^x dx$ **and z(0)=0.**

a) Find z using the numeric tools of MATLAB when 0 ¡ x ¡ 1.

b) Plot y and z when 0 ¡ x ¡ 1.

3. **Let y = cos x, determine numerical derivative based on 101 points in one cycle and plot y' and (-sinx).**

4. **A test is performed on a mechanical part and the acceleration versus time is measured and shown as follows. Use MATLAB to determine and plot the velocity and displacement as a function of time.**
   Remember that velocity = ∫ acceleration dt, and displacement = ∫ velocity dt.

t, s	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
a, m/s²	0	9.05	16.37	22.22	26.81	30.33	32.93	34.76	35.95	36.59

1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
36.79	36.62	36.14	35.43	34.52	33.47	32.30	31.06	29.75	28.42	27.07