



SNS COLLEGE OF ENGINEERING

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AN AUTONOMOUS INSTITUTION



Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

TUTORIAL

Numerical differentiation:

1. Use the Newton divided difference formula to calculate $f'(3)$ and $f''(3)$ from the following table

x:	3.0	3.2	3.4	3.6	3.8	4.0
f(x)	-14	-10.032	-5.296	-0.256	6.672	14

2. Compute $f'(0)$ and $f''(4)$ from the following data:

x:	0	1	2	3	4
f(x)	1	2.718	7.381	20.086	54.598

3. Given the following data, find $y'(6)$ and the maximum value of y.

x:	0	2	3	4	7	9
f(x)	4	26	58	112	466	922

4. Find the first three derivatives of $f(x)$ at $x=1.5$ by Newton's forward interpolation from.

x:		1.5	2.0	2.5	3.0	3.5	4.0
f(x)		3.375	7.000	13.625	24.000	38.875	59.000

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