

Department of Mathematical and Computational Sciences
National Institute of Technology Karnataka, Surathkal
Numerical Analysis - MA 704
Problem Sheet 4

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1. Obtain the cubic spline approximation for the function given below.

x	0	1	2	3
$f(x)$	1	2	33	244

and $M(0) = 0, M(3) = 0$.

2. The following values of x and y are given, obtain the cubic spline which will agree with $y(x)$ at the set of points given.

x	2	3	4
y	11	49	123

Hence compute $y(2.5)$ and $y'(2.0)$.

3. Fit the following four points by cubic splines

x	1	2	3	4
y	1	5	11	8

Use the end conditions $y''_0 = y''_3 = 0$. Hence compute $y(1.5)$ and $y'(2.0)$.

4. Find the natural cubic spline which interpolates the following data.

x	17	20	23	26
y	4.5	7.0	6.1	5.5