

Date : 17/10/2022
Submission Date : 09/11/2022
Before 2.00 p.m.

Assignment 1
[Interpolation]

1. From a table of differences for the function $f(x) = x^3 + 5x - 7$ for $x = -1, 0, 1, 2, 3, 4, 5$.
Continue the table to obtain $f(6)$ and $f(7)$ [ans 239, 371]

2. [ans 1.6751, 1.7081]

From the following table of values of x and $f(x)$, determine (i) $f(0.23)$ and (ii) $f(0.29)$:

x	$f(x)$
0.20	1.6596
0.22	1.6698
0.24	1.6804
0.26	1.6912
0.28	1.7024
0.30	1.7139

3. [ans 31]

Find the missing term in the following table:

x	y
0	1
1	3
2	9
3	?
4	81

4. [ans 12.45]

Given the table of values:

x	$y = \sqrt{x}$
150	12.247
152	12.329
154	12.410
156	12.490

evaluate $\sqrt{155}$ using Lagrange's interpolation formula.

5. [ans 2.3124]

From the following table of values, find x for which $\sinh x = 5$:

x	$\sinh x$
2.2	4.457
2.4	5.466
2.6	6.695
2.8	8.198
3.0	10.018