

Assignment 2 Interpolation

1. Write a program to find the value of $f(0.4)$ using Lagrange's interpolation formula for the table of values given below.

| | | | |
|------|------|------|------|
| x | 0.3 | 0.5 | 0.6 |
| f(x) | 0.61 | 0.69 | 0.72 |

2. Write a program to find the value of $f(2)$ using Newton's Divided Difference interpolation formula for the table of values given below.

| | | | | | |
|------|----|----|----|-----|------|
| x | -1 | 0 | 3 | 6 | 7 |
| f(x) | 3 | -6 | 39 | 822 | 1611 |

3. Write a program to find the value of $f(0.5)$ by using Forward Difference interpolation on the following table of data.

| | | | | | |
|------|---|---|----|----|-----|
| x | 0 | 1 | 2 | 3 | 4 |
| f(x) | 1 | 4 | 16 | 64 | 256 |

4. Write a program to find the value of $f(7.5)$ by using Backward Difference interpolation on the following table of data.

| | | | | | | |
|------|----|----|-----|-----|-----|-----|
| x | 3 | 4 | 5 | 6 | 7 | 8 |
| f(x) | 28 | 65 | 126 | 217 | 344 | 513 |