

CSc 301: Numerical Issues in Scientific Programming

Homework Assignment 5

1. An experiment to measure the intensity of light as a function of the distance from the source of the light produced the following data:

d	30	35	40	45	50	55	60	65	70	75
i	0.85	0.67	0.52	0.42	0.34	0.28	0.24	0.21	0.18	0.15

- a. Find the best fit quadratic function;
 - b. Find the best fit exponential function;
 - c. Find the interpolating polynomial;
 - d. Find the interpolating cubic spline;
 - e. Plot on the same graph. Explain the difference if any.
2. **P 5.4.2**, page 200
Write a script that demonstrates your trigonometric interpolation: generate an example of a periodic (real valued) function and display the results of the interpolation with different number of sampling points.
 3. **P 7.1.1**, page 246