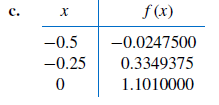
Homework 7 - 3.4, 4.1

# Section 3.4 (3.5)

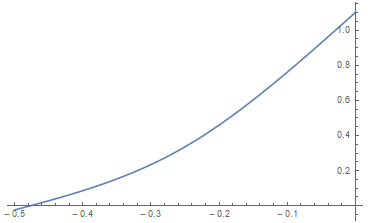
## Problem 3.

Construct the natural cubic spline for the following data.



Using the Natural Cubic Spline approach:

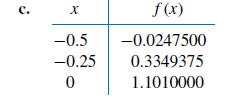
Graphing this:



### 

### Problem 7.

Construct the clamped cubic spline using the data of Exercise 3 and the fact that



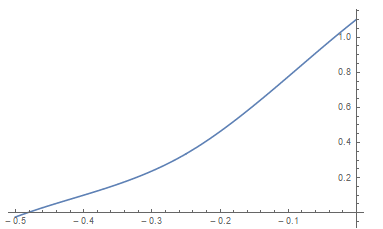
For the clamped method:

For these values, we get that:

Using the equations to solve for the coefficients:

Now that we have our coefficients:

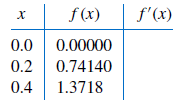
Graphing:



# Section 4.1

## Problem 3

The data in Exercise 1 were taken from the following functions. Compute the actual errors in Exercise 1, and find error bounds using the error formulas.



We will use the forward for and backwards for :

The actual values are:

Meaning that the errors for the values are:

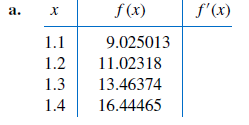
The error for forward difference for is:

For :

For :

## Problem 5.

Use the most accurate three-point formula to determine each missing entry in the following tables.



Since we know that midpoint formulas are more accurate than endpoint, we will use midpoint in the middle two values and endpoints at the endpoints due to having no other choice.

Midpoints:

For and :

Endpoints:

For :

For :