

# Interpolation Assignment Questions

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## Problem 1

Given the following data points:

$$x = [1, 2, 3, 4, 5], \quad y = [2, 4, 6, 8, 10]$$

Use **linear interpolation** to estimate the value of  $y$  when  $x = 3.5$  and  $x = 4.5$ .

**Deliverable:** Implement the linear interpolation method and compute the values for the specified  $x$ .

## Problem 2

For the data points:

$$x = [1, 2, 3], \quad y = [2, 3, 5]$$

Use **Lagrange interpolation** to find a polynomial that fits these points. Then, estimate the value of  $y$  for  $x = 2.5$ .

**Deliverable:** Implement the Lagrange interpolation polynomial and use it to find the interpolated value.

