1. Find the Newton and Lagrange forms for the interpolation polynomial corresponding to the following sets of data.

(a)  
\[x_0 = 0, \quad y_0 = -1\]
\[x_1 = 1, \quad y_1 = -2\]
\[x_2 = 2, \quad y_2 = -1\]
\[x_3 = 3, \quad y_3 = -4\]

(b)  
\[x_0 = 1, \quad y_0 = 3\]
\[x_1 = 2, \quad y_1 = 2\]
\[x_2 = 0, \quad y_2 = -4\]
\[x_3 = 3, \quad y_3 = 5\]

2. What is the maximal error that can occur in approximating \(f(x) = \cosh(x)\) by a polynomial interpolation at 6 points in the interval \([0, -1]\).

3. Suppose you had to design an experiment that would determine an interpolating polynomial for a function that takes values in the range between 1 and 100. If you can only take 10 data points, which points should you choose?