1. Show that:

\[-u'' + u - x = 0 \text{ could be solved by elementary classical methods, specifically for } a = 8 \text{ and } b = 1\]

\[u(x) = x - \frac{\sinh(x)}{\sinh(1)}\]

for all \(0 \leq x \leq 1\)

2. Perform all of the numerical integrations in order to find the numerical values of the elements of \(\{K\}\) matrix and \(\{b\}\) column matrix as described in eqn. 10 of page 116.

3. Calculate the numerical values of the element conductivity matrix as shown in eqn. A of page 123 and element load matrix, eqn. B in page 124. Use linear finite element trial space as described in page 120.