1) Calculate the **In-Place** Haar Wavelet Transform for the data $\mathbf{s} = (8, 6, 7, 3, 1, 1, 2, 4)$ 8pt

2) Assume that the **In-Place** Haar Wavelet Transform of a sample $\mathbf{s} = (s_0, s_1, s_2, s_3)$ produces   8pt
the result $(5, 1, -2, 3)$. Apply the inverse transform to reconstruct the sample $\mathbf{s}$

3) Assume that the **In-Place** Haar Wavelet Transform produces the final result   4pt

$$\mathbf{s}^{(3-3)} = (5, -1, 2, 3, 4, 1, 9, 0).$$

a) Determine the average of the sample $\mathbf{s}$.

b) In the array of results, identify the value of $c_1^{(3-2)}$.