Consider a two-layer neural network with:

- **Layer 1:** **9 neurons**
- **Layer 2:** **3 neurons**
- **Training set:** **5 samples**
- **Dimension of each sample:** **7**

$$net = XW$$

Bias is included in the first row of weight matrix

What are the shapes of the weight matrices for each layer?

Solution:

The shape of the weight matrix for the first layer is (8,9), i.e. 8 rows by 9 columns
The shape of the weight matrix for the second layer is (10,3), i.e. 10 rows by 3 columns