Assignment 1

**Associative Learning**

1. Train the orange recognition network studied previously using the instar rule with a learning rate of 0.4. Use the training sequence given below



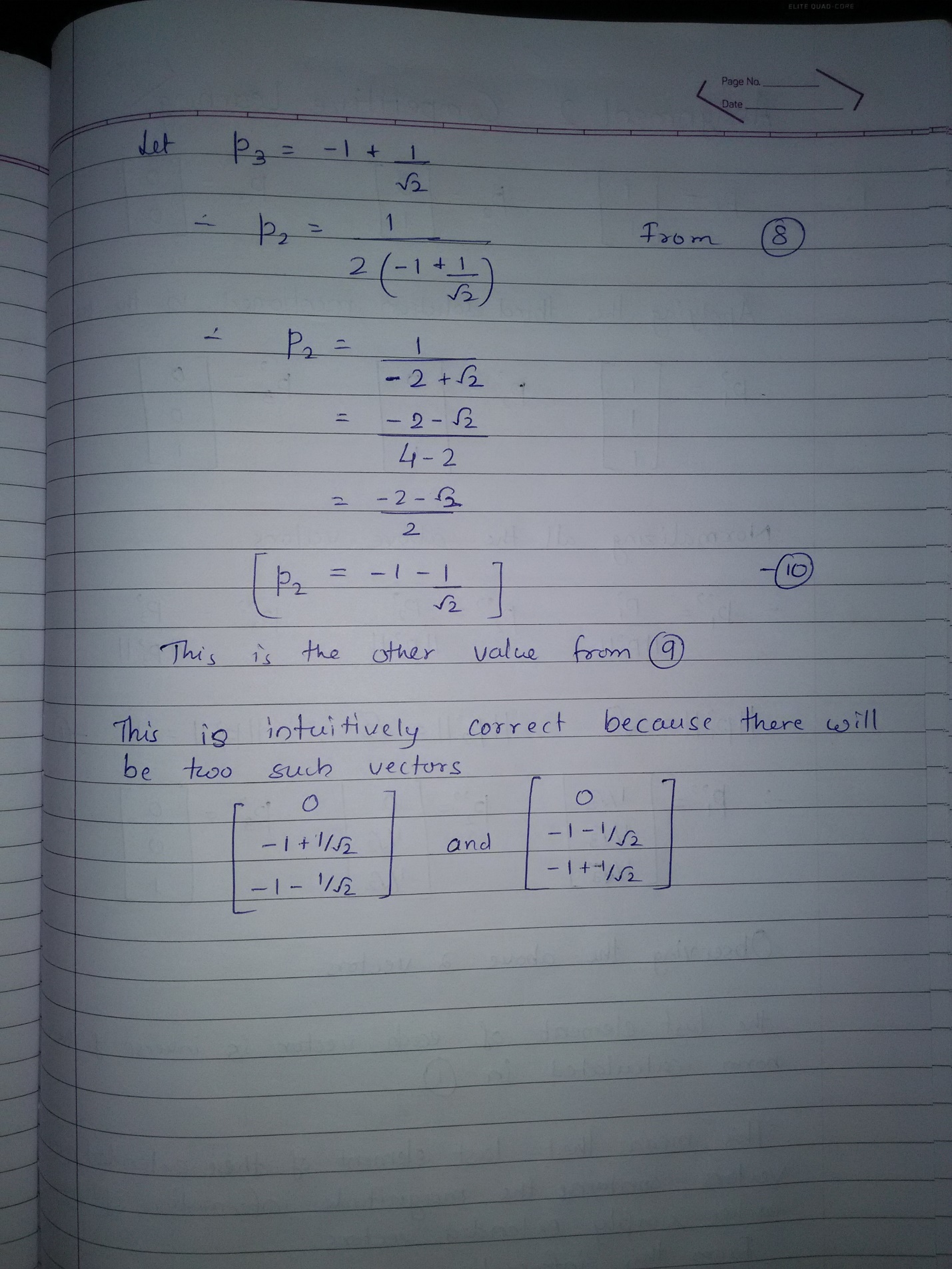
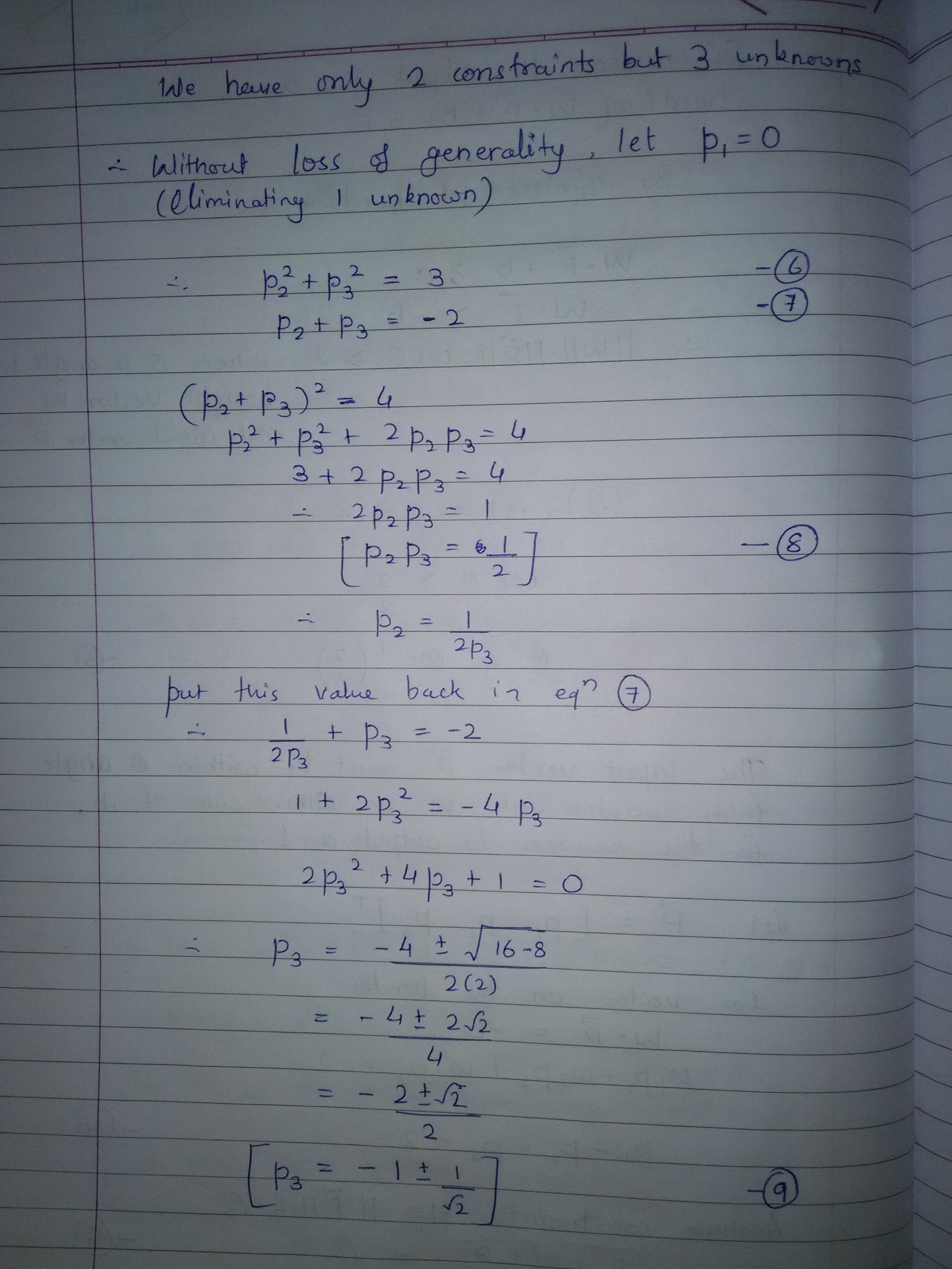
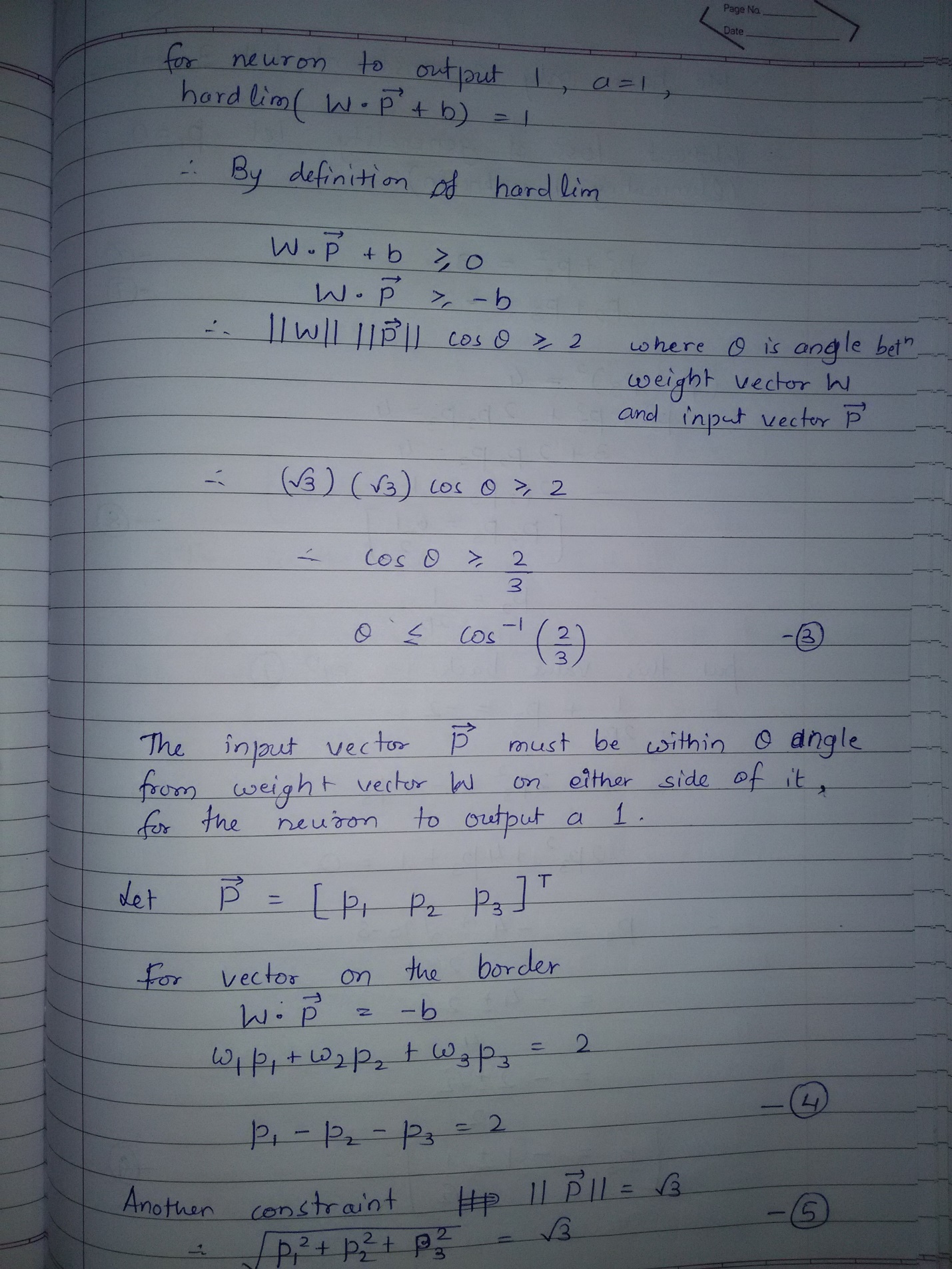
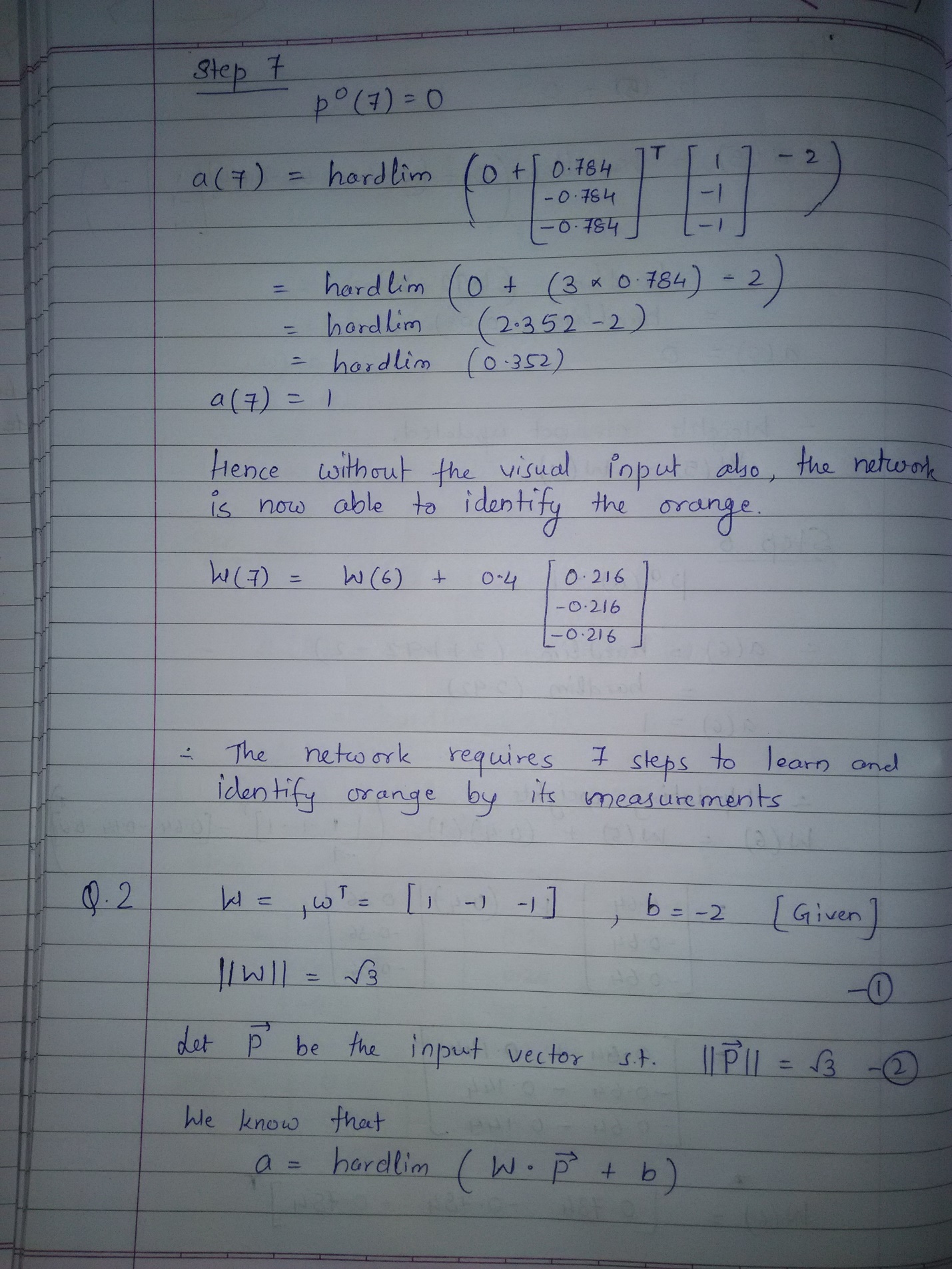
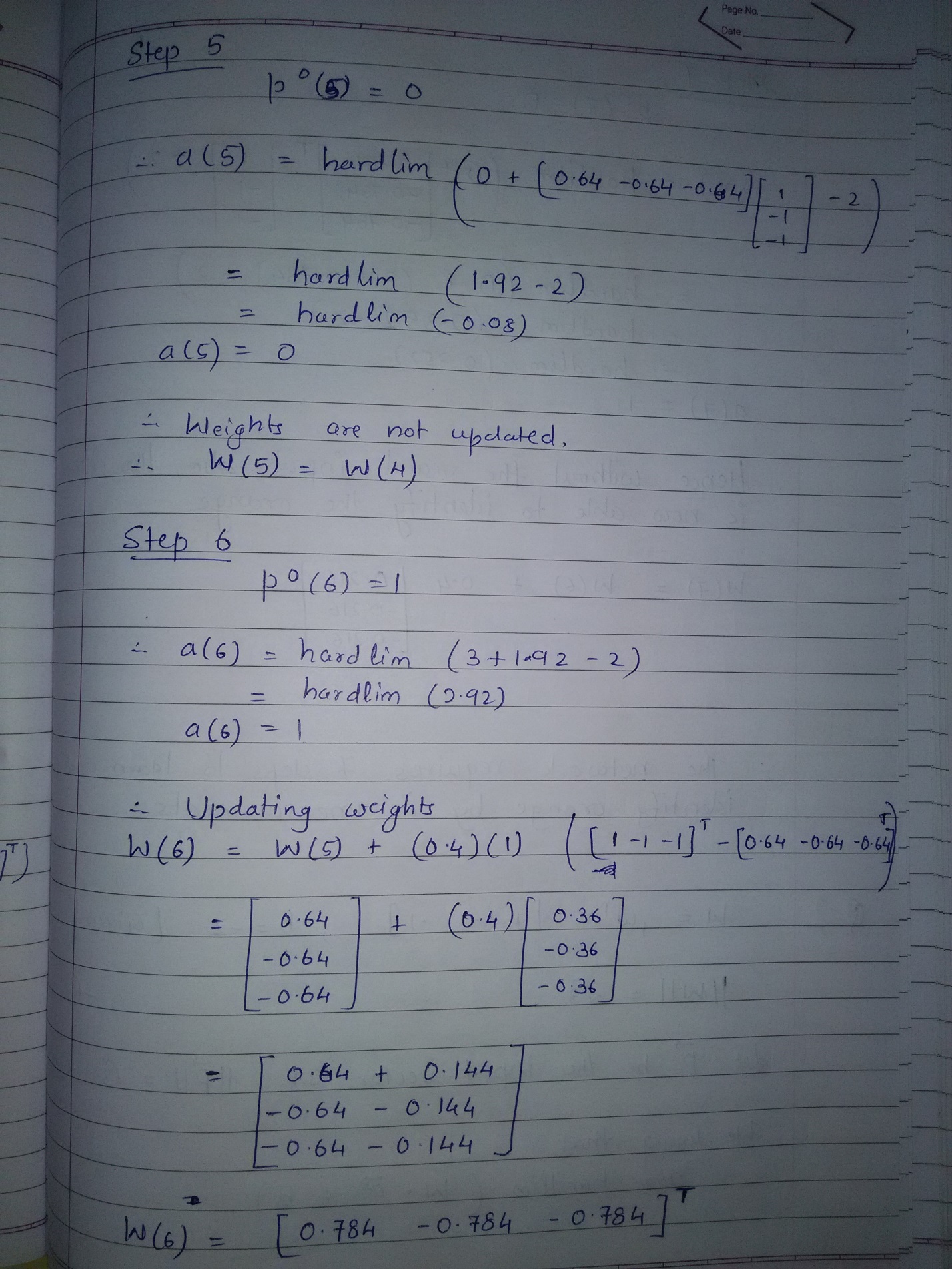
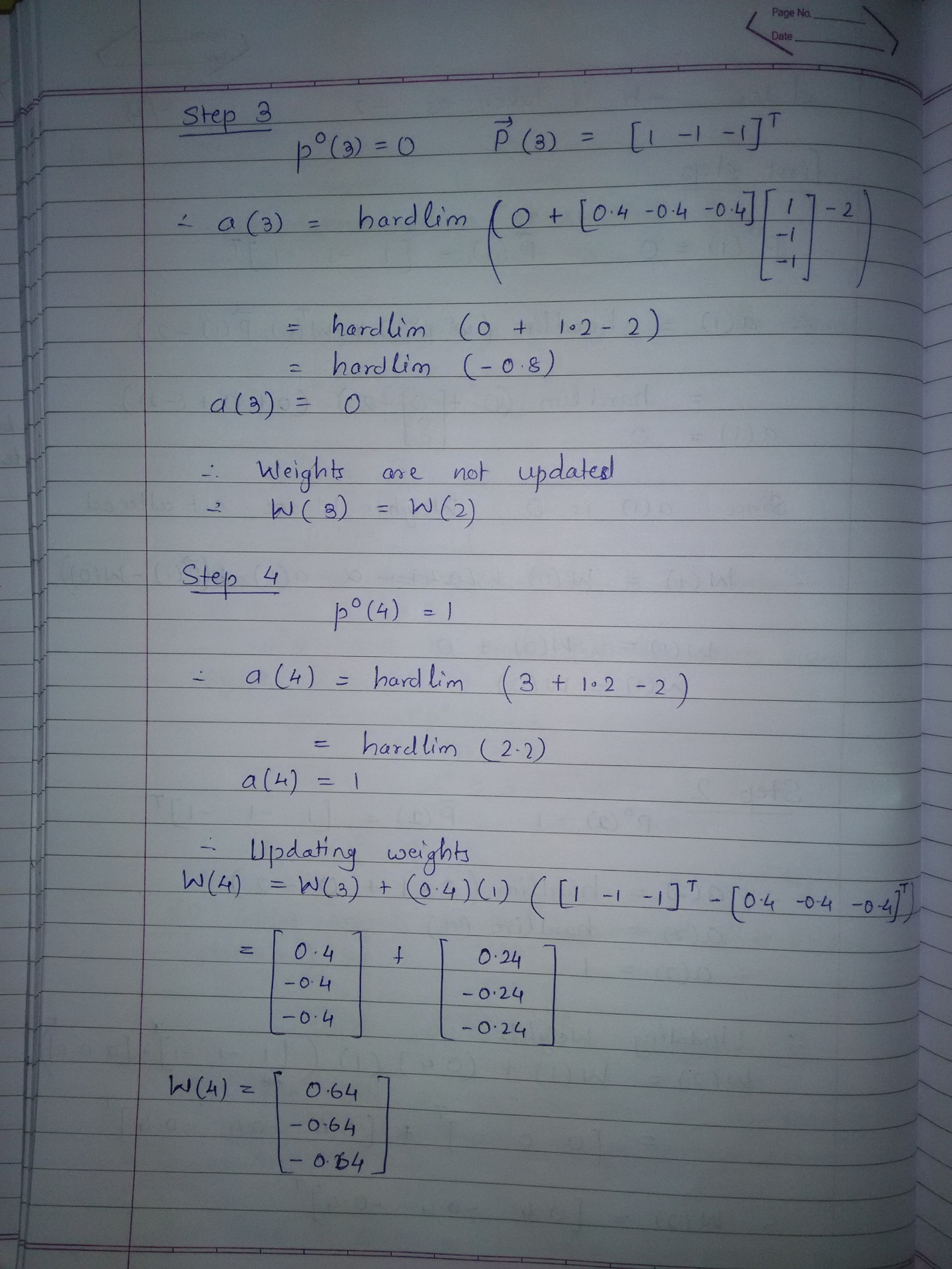
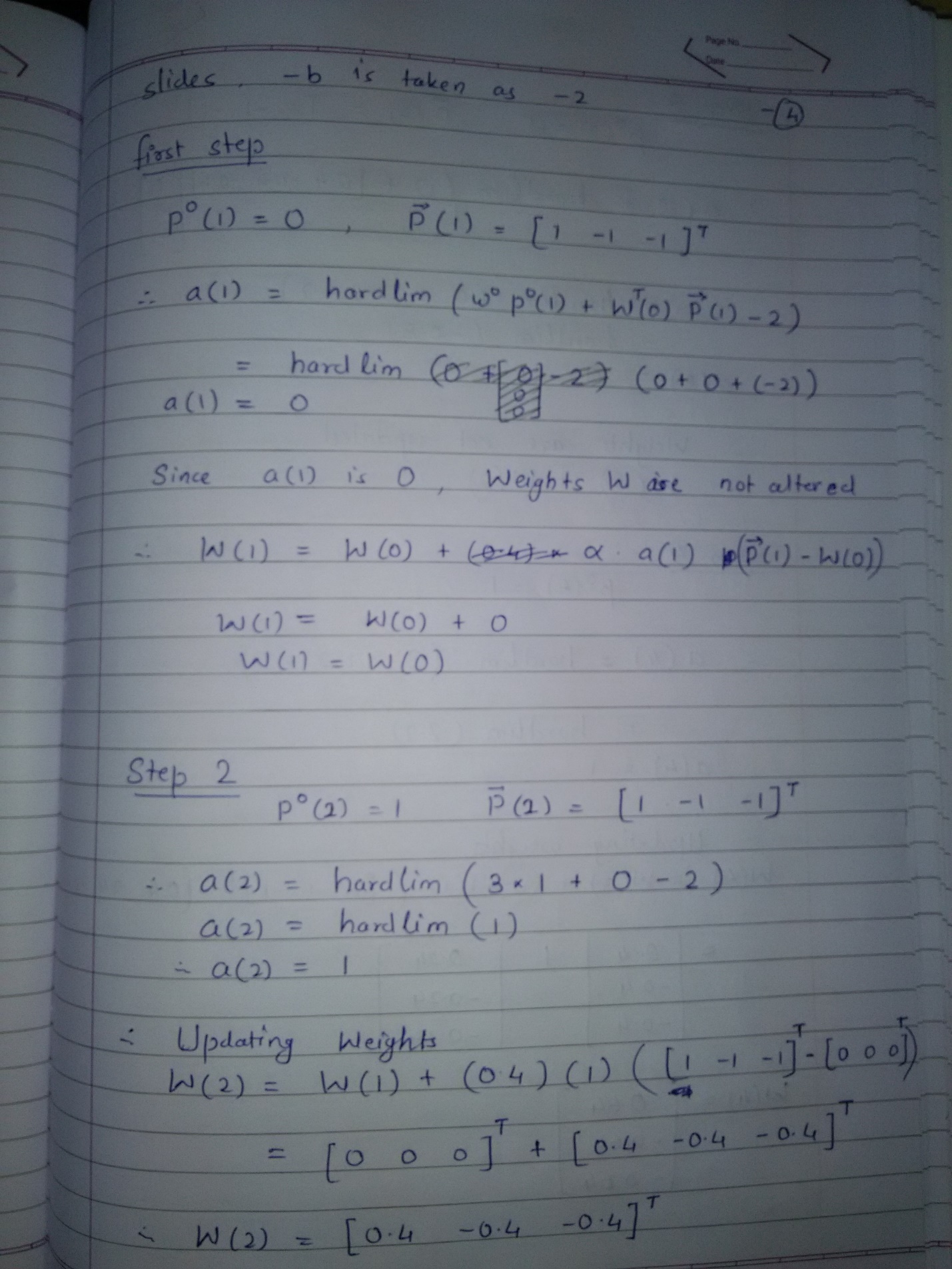
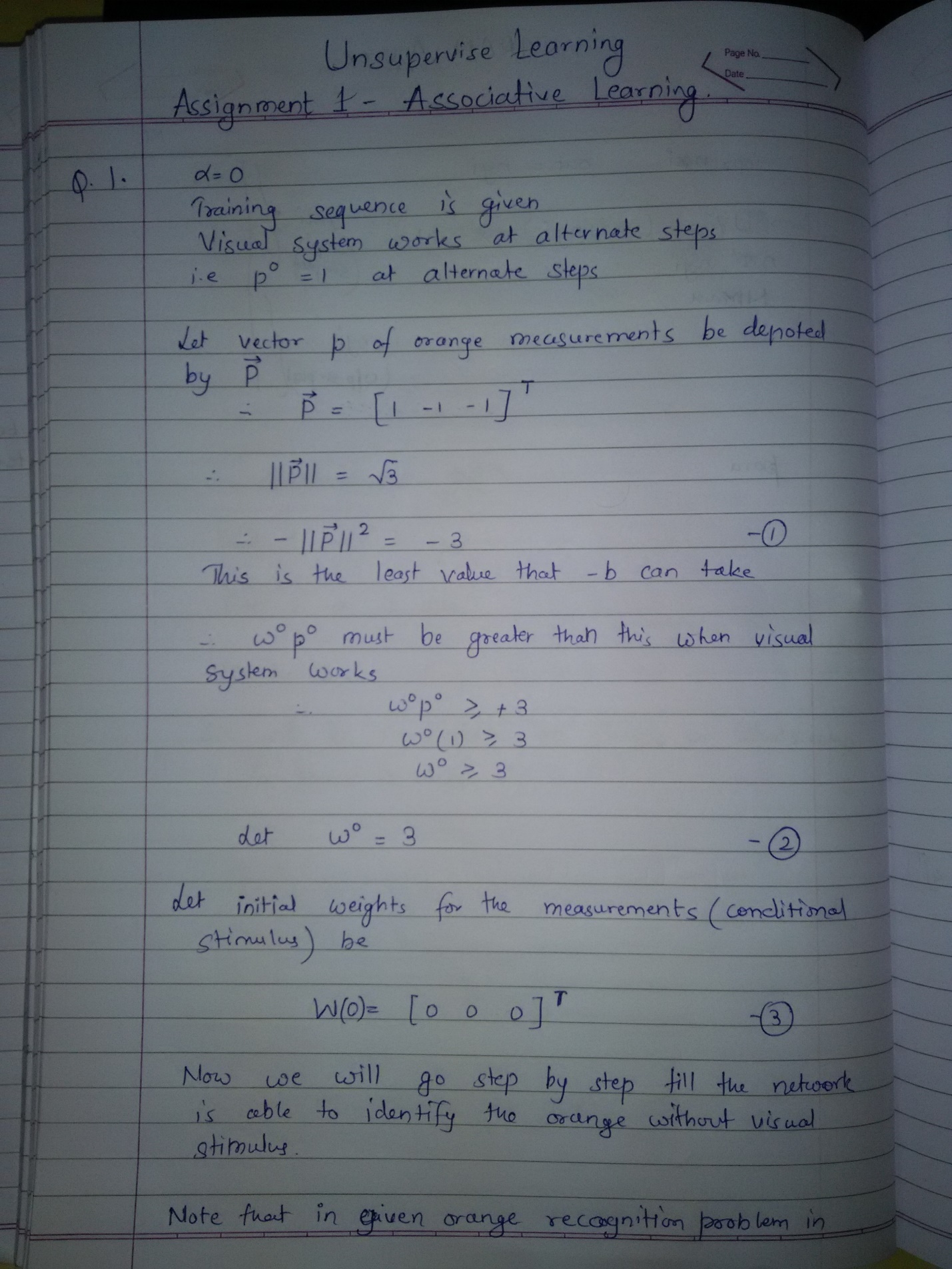
until the network can respond to the orange measurements  even when the visual detection system fails. How many steps are required for the network to learn to recognize an orange by its measurements?

2. A single instar is being used for pattern recognition. Its weights and bias have the following values:



How close must an input vector (with a magnitude of ) be to the weight vector for the neuron to output a 1? Find a vector that occurs on the border between those vectors that are recognized and those vectors that are not.

**Solutions to both the questions are in the following images**

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