## **Mathematical setup for the learning algorithm**

What is our aim now?

1. Instead of guessing 𝚫w and 𝚫b, we need a principled way of changing w and b based on the loss function.
2. First, let’s formulate this more mathematically
   1. 𝜃 = [w, b] (Theta is a vector containing the values of w and b)
   2. 𝚫𝜃 = [𝚫w, 𝚫b] (𝚫𝜃 is the change vector, the value we change w and b by)
   3. 𝜃 = 𝜃 + η𝚫𝜃 (Where η is the learning rate, which allows for small changes in 𝜃)
   4. We need to compute 𝚫𝜃 such that Loss(𝜃new) < Loss(𝜃old)