



Welcome

Introduction

Review

Model and Cost Function

Parameter Learning

- ✓ **Video:** Gradient Descent
11 min
- ✓ **Reading:** Gradient Descent
3 min
- ✓ **Video:** Gradient Descent Intuition
11 min
- 📖 **Reading:** Gradient Descent Intuition
3 min
- ▶ **Video:** Gradient Descent For Linear Regression
10 min
- 📖 **Reading:** Gradient Descent For Linear Regression
6 min

Review

Linear Algebra Review

Review

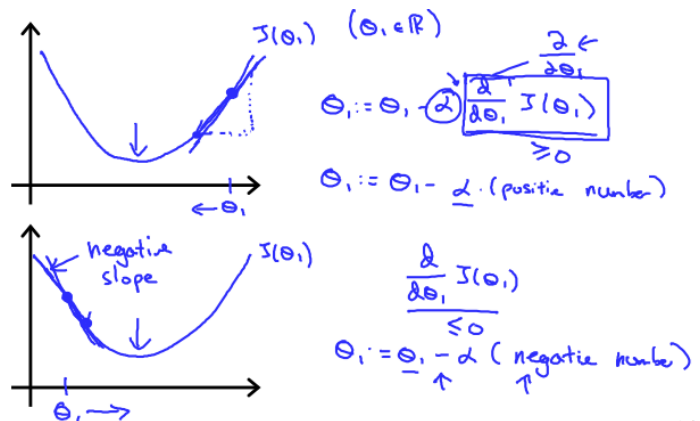
Gradient Descent Intuition

In this video we explored the scenario where we used one parameter θ_1 and plotted its cost function to implement a gradient descent. Our formula for a single parameter was :

Repeat until convergence:

$$\theta_1 := \theta_1 - \alpha \frac{d}{d\theta_1} J(\theta_1)$$

Regardless of the slope's sign for $\frac{d}{d\theta_1} J(\theta_1)$, θ_1 eventually converges to its minimum value. The following graph shows that when the slope is negative, the value of θ_1 increases and when it is positive, the value of θ_1 decreases.



On a side note, we should adjust our parameter α to ensure that the gradient descent algorithm converges in a reasonable time. Failure to converge or too much time to obtain the minimum value imply that our step size is wrong.

