

Welcome

- ✓ **Video:** Welcome to Machine Learning!
1 min
- ✓ **Reading:** Machine Learning Honor Code
8 min

Introduction

- ✓ **Video:** Welcome
6 min
- ✓ **Video:** What is Machine Learning?
7 min
- ✓ **Reading:** What is Machine Learning?
5 min
- ✓ **Reading:** How to Use Discussion Forums
4 min
- ✓ **Video:** Supervised Learning
12 min
- ✓ **Reading:** Supervised Learning
4 min
- ✓ **Video:** Unsupervised Learning
14 min
- ✓ **Reading:** Unsupervised Learning
3 min
- ✓ **Reading:** Who are Mentors?
3 min
- ✓ **Reading:** Get to Know Your Classmates
8 min
- ✓ **Reading:** Frequently Asked Questions
11 min

Review

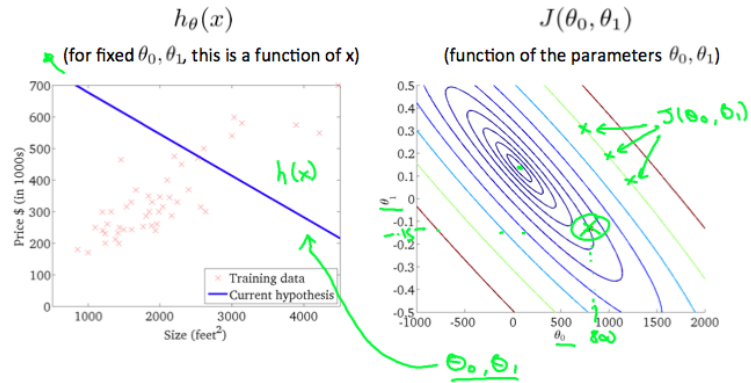
- ✓ **Reading:** Lecture Slides
20 min
- ✓ **Quiz:** Introduction
5 questions

Model and Cost Function

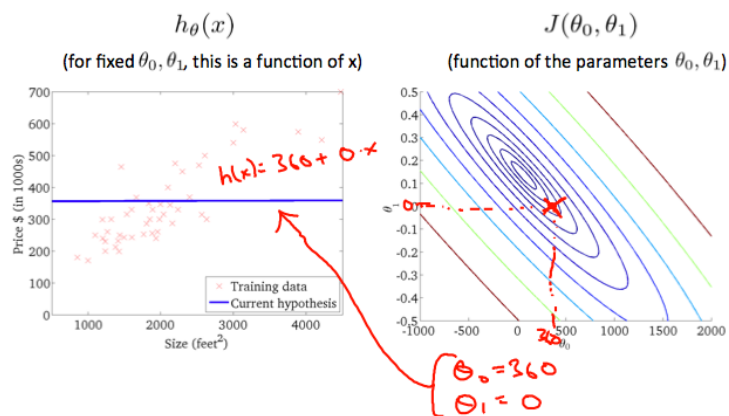
- ✓ **Video:** Model Representation
8 min
- ✓ **Reading:** Model Representation
~

Cost Function - Intuition II

A contour plot is a graph that contains many contour lines. A contour line of a two variable function has a constant value at all points of the same line. An example of such a graph is the one to the right below.



Taking any color and going along the 'circle', one would expect to get the same value of the cost function. For example, the three green points found on the green line above have the same value for $J(\theta_0, \theta_1)$ and as a result, they are found along the same line. The circled x displays the value of the cost function for the graph on the left when $\theta_0 = 800$ and $\theta_1 = -0.15$. Taking another $h(x)$ and plotting its contour plot, one gets the following graphs:



When $\theta_0 = 360$ and $\theta_1 = 0$, the value of $J(\theta_0, \theta_1)$ in the contour plot gets closer to the center thus reducing the cost function error. Now giving our hypothesis function a slightly positive slope results in a better fit of the data.

