Evaluating a Hypothesis

Once we have done some trouble shooting for errors in our
by:

- Getting more training examples
- Trying smaller sets of features
- Trying additional features
- Trying polynomial features
- Increasing or decreasing λ

We can move on to evaluate our new hypothesis.

A hypothesis may have a low error for the training examples
inaccurate (because of overfitting). Thus, to evaluate a hypot
a dataset of training examples, we can split up the data into
training set and a **test set**. Typically, the training set consist
your data and the test set is the remaining 30 %.

The new procedure using these two sets is then:

1. Learn Θ and minimize $J_{train}(\Theta)$ using the training set
2. Compute the test set error $J_{test}(\Theta)$

The test set error

1. For linear regression: $J_{test}(\Theta) = \dfrac{1}{2m_{test}} \sum_{i=1}^{m_{test}} (h_\Theta(x$
$y_{test}^{(i)})^2$
2. For classification ~ Misclassification error (aka 0/1 miscl
error):

$$err(h_\Theta(x), y) = \begin{matrix} 1 & \text{if } h_\Theta(x) \geq 0.5\ and\ y = 0\ or\ h_\Theta(x) < 0.5 \\ 0 & otherwise \end{matrix}$$

This gives us a binary 0 or 1 error result based on a misclassi