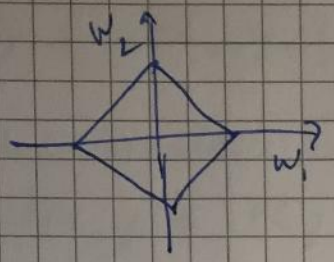
CS4780 L17 Regularization

L1 ball



Increases sparsity

Problem: Not strictly convex

so when 2 features have same importance, any values of w_1, w_2 give exactly same solution cofusing interpretation

Elasticnet: $\lambda|w| + \mu\|w\|_2$ combines both L_1 & L_2

$|w|_2 \sum_a |w_a|$

Lasso: square loss with L_1 regularizer only

$\frac{1}{n} \sum (w^T x_i - y_i)^2 + \lambda|w|$