$$x^T y = \sum_{i=1}^{m} x_i y_i$$

$$w^T w = \|w\|_2^2 = \sum_{i=0} w_i^2$$

$$\|w\|_\infty = \max_i (w_i)$$

$$\|w\|_2 = \sqrt{w_0^2 + w_1^2 + w_2^2 \cdots w_n^2}$$

$$\|w\|_1 = \sum_{i=0}^{m} |w_i| = |w_0| + |w_1| + \cdots$$