Kernel Methods cont.

$$X X^T = \left(\begin{array}{c} \equiv \\ \equiv \\ \equiv \\ \equiv \\ \equiv \\ \equiv \end{array}\right) \left(\begin{array}{cccccc} | & | & | & | & | & | \end{array}\right)$$

$$(X X^T)_{ij} = \langle x_i, x_j \rangle$$

$$X X^T = K$$

K-NN:

$$\|x - x'\|^2$$

$$d(y, x_i) =$$

$$\|y - x_i\|^2 = \langle y, y \rangle$$

$$+ \langle x_i, x_i \rangle - 2\langle x, y_i \rangle$$