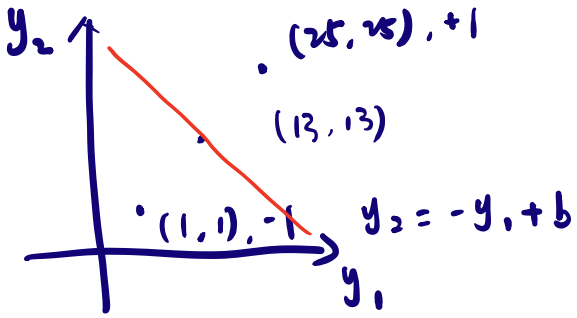
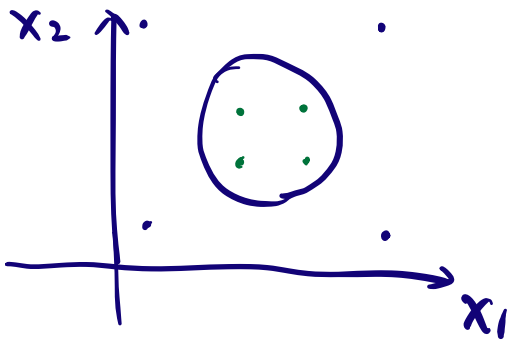
Oct 24, 2024.



$x_1\ x_2$ $\quad$ $y_1\ \ y_2$

$(6, 6) \rightarrow (1, 1)$

$(10, 10) \rightarrow (25, 25)$



$(0, 4)$ on the boundary ?

$(x, y) \quad (x^2, y^2, xy)$

$(1, 2) \rightarrow (1, 4, 2)$

$(1, -2) \rightarrow (1, 4, -2)$

$(-1, 2) \rightarrow (1, 4, -2)$

$k(u, v) = \phi(u) \cdot \phi(v)$

$1 + 4 \times 4 + 2 \times (-2) = \_\_$

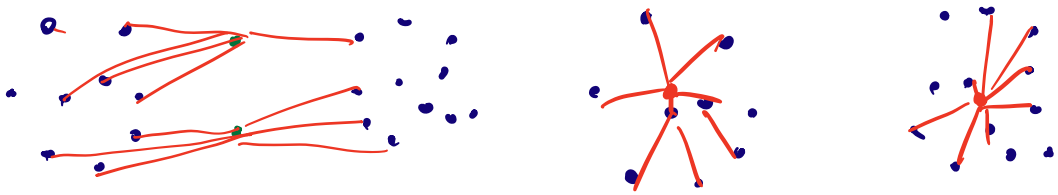
Gaussian kernel

$G(u, v)$

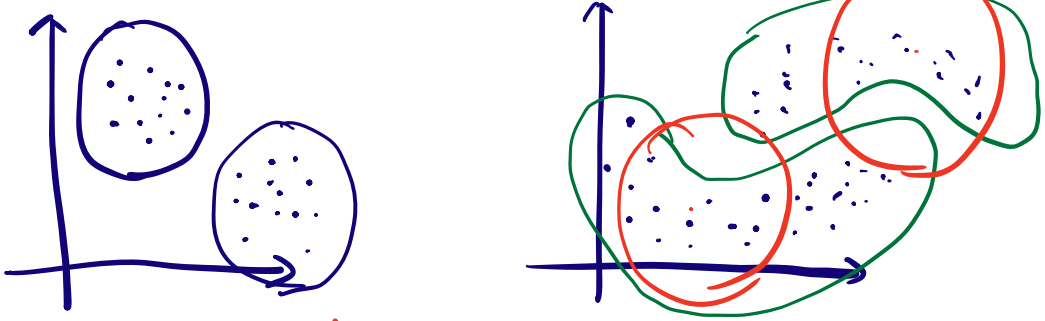
$= \exp\left(-\frac{1}{2\sigma^2}\|u - v\|^2\right)$

$$J = \sum_{n=1}^{N} \sum_{k=1}^{K} R_{nk} \|x_n - c_k\|^2$$

$$R_{nk} = \begin{cases} 1 & x_n \in C_k \\ 0 & \text{otherwise} \end{cases}$$



J_1 > J_2



Suitable for k-means