Welcome Tutorial :-)

Tutorial 10

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1. Let K_1 and K_2 are kernels, please prove that (1) $cK1$ is a kernel, if $c > 0$; (2) $K_1 + K_2$ is also a kernel.(Hint: prove two points: (1) $K(x_1, x_2) = K(x_2, x_1)$; (2) $\forall x \in \mathbb{R}^n$, we have $x^T K x \geq 0$.)
2. Let $K(x_1, x_2) = f(x_1)f(x_2)$, where $f(x)$ be a real function and $x_i \in \mathbb{R}^n$. Please prove that $K(x_1, x_2)$ is kernel function.
3. Please prove $K(x, y) = x^T y + c$ is a kernel function (linear kernel), where c is a non-negative constant.