DATA130013: Homework 10

No need to hand in.

1. If K_1 and K_2 are positive definite kernels, then their product K_1K_2 is a positive definite kernel.

2. Let $\gamma(s_1, s_2)$ be a semi-variogram, prove that it is a conditionally negative definite function, i.e., given any positive integer n, for all weights $w_1, \ldots, w_n$ satisfying $\sum_{i=1}^{n} w_i = 0$, and locations $s_1, \ldots, s_n$, it holds that

$$\sum_{i=1}^{n} \sum_{j=1}^{n} w_i \gamma(s_i, s_j) w_j \leq 0.$$