HW 5 P03

$K_1(\,)$ is valid

$K_2(\,)$ is valid.

let $K_3(\,) = K_1(\,) + K_2(\,)$

$$f' K_3 f = \sum_{ij} f_i K_3(\,) f_j$$

$$= \sum_{ij} f_i (K_1(\,) + K_2(\,)) f_j$$

$$= \sum_{ij} f_i (K_1(\,)) f_j + \sum_{ij} f_i (K_2(\,)) f_j$$

$$= f' K_1 f + f' K_2 f \geq 0.$$

→ K_3 is also PSD. ⇒ K_3 is a kernel, valid.