3. a) $x = \text{sign}\left(\sum_i^N \alpha_i^* K(x, x^i)\right)$

b) As $\alpha_i^* = 0$ for $i = 1, 2, ..99, 102, 103 .... 1000$

Thus

x becomes

$$x = \text{sign}\left(\alpha_{100} K(x, x^{100}) + \alpha_{101} K(x, x^{101})\right)$$