

CSCI4390/6390 – Data Mining
Fall 2007, Quiz 15
Total Points: 10

Name: _____

1. (10 points) Given the two points $\mathbf{x}_1 = (1, 2)$, and $\mathbf{x}_2 = (2, 1)$, use the kernel function

$$K(\mathbf{x}_i, \mathbf{x}_j) = (\mathbf{x}_i^T \mathbf{x}_j)^2$$

to find the kernel principal component. You can do this by solving the equation:

$$\mathbf{K}\mathbf{a} = n\lambda_1\mathbf{a}$$

where \mathbf{K} is the kernel pairwise matrix.