QUIZ XVI

Time: 10min

1. Let l be a line in the xy-plane that passes through the origin and makes an angle θ with the positive x-axis. Let $T : R^2 \to R^2$ be the orthogonal projection of R^2 onto l.
(a) Find the matrix of T with respect to the standard basis.
(b) Give a basis with respect to which the matrix of T is diagonal.