King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 280 (161) Sec 01 - Quiz 3

Name: ID: Serial No.:

1. Let S be the subspace of $\mathbb{R}^4$ spanned by $x_1 = (1, 0, -2, 1)^T$ and $x_2 = (0, 1, 3, -2)^T$.
   Find a basis for $S^\perp$.

2. Consider the inner product space $C[0, 1]$ with

$$\langle f, g \rangle = \int_0^1 f(x)g(x)dx.$$

Determine the cosine of the angle between the functions $f(x) = 5x^2$ and $g(x) = 3x$.