

(This is the coversheet for the homework. The problems refer to Anton and Rorres 10th ed. of *Elementary Linear Algebra: applications version*. See Problem Sets 1, 2 or 3 for further formatting.)

**Problem 104** § 6.1 # 8 (inner product on  $P_2$ )

**Problem 105** § 6.1 # 30 (inner product for functions on  $[0, 1]$ )

**Problem 106** § 6.2 # 10 (find unit-normals to hyperplane in  $\mathbb{R}^4$ )

**Problem 107** § 6.2 # 16 (find basis for orthogonal complement of span)

**Problem 108** § 6.3 # 12 (finding coordinates w.r.t. orthonormal basis)

**Problem 109** § 6.3 # 14 (projection of 4-vector onto plane in  $\mathbb{R}^4$ )

**Problem 110** § 6.3 # 22 (gram-schmidt on 3 vectors in  $\mathbb{R}^3$ )

**Problem 111** § 6.3 # 24 (gram-schmidt for basis of subspace... oh noes, it's a trap)

**Problem 112** § 6.3 # 32 (Legendre polynomials in action)

**Problem 113** § 6.3 # 32 (gram-schmidt on  $\{1, x, x^2\}$  on  $[0, 1]$ )

**Problem 114** § 6.4 # 4a and 6a (least squares solution and its error)

**Problem 115** § 6.4 # 12 (finding orthogonal projection via Anton's equation (10) of page 372)