Math 5101 HOMEWORK 3

1. Let $V = Sp(1, \cos t, \cos 2t, \cos 3t, \cos 4t)$ be the linear span of these five linear independent continuous functions over $\mathbb{R}$.

a) Show that $\{1, \cos t, \cos^2 t, \cos^3 t, \cos^4 t\}$ is a basis for V.

b) What is dim V?

2...6 Solve, write up solutions and hand in for grading the problems 2.6.1, 2.6.2, 2.6.5, 2.6.7, 2.6.16 found in the first two pages of the hand-out.

Solve more problems from the hand-out (but do not hand in the solutions for grading), they are nice, interesting, and will help you master the concepts.