This Week in SM311P:1001: Homework, etc.

Homework must be submitted stapled in assignment groupings.

Always attempt to complete the readings before class. You are responsible for reading 10 pages past the current lecture. You may not understand the material completely, but you must read it prior to lecture.

** Problems to submit on the date listed: **

Week of 8 Sep

Monday	FS16
Wednesday:	
Friday:	A1, A2

TERMS TO TREASURE:

independent behavior
completeness
inner product, a gauge of common behavior
orthogonality relation

B: => Boas Problem CS: => Coordinate Systems Handout Problem
CN: => Complex Numbers Handout
FS: => Fourier Series Handout
A: => Auxiliary Problem - statement on this page !

A1. 1.) Craft a careful prose statement that describes the condition satisfied by a set of vectors that are linearly dependent.

2.) Complete the exercise on about page six of the vector space handout

Exercise: Consider the collection of objects of the form $\vec{v} = a\,\hat{i} + b\,\hat{j}$ where the scalars a and b are any real number. The vector addition and scalar (c) multiplication operations are defined as:

$$\vec{v}_1 + \vec{v}_2 = (a_1 + a_2)\hat{i} + (b_1 + b_2)\hat{j}$$
$$c\,\vec{v}_1 = c\,(a_1\hat{i} + b_1\hat{j}) = (c\,a_1)\hat{i} + (c\,b_1)\hat{j}$$

Show that the collection of all $\vec{v}$ forms a linear vector space. Assume that scalar addition and multiplication of the real numbers obey all the common rules.

Please include obsess and include all the gritty details as illustrated by the 3-tuple example.

SAMPLE CALCULATION: Certifying a set as a vector space: .... (page 12)