COMMENTS FOR LECTURE 1 - 1.25.2010

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LINEAR COMBINATION. Look at **Definition 1** carefully and notice that the following is a linear combination of x_1, $(x_2)^3$ and $\sqrt{x_3}$:

$$x_1 - 2(x_2)^3 + 5\sqrt{x_3}$$

but is **NOT** a linear combination of x_1, x_2 and x_3. An example of a linear combination of x_1, x_2 and x_3 would be the following:

$$\tfrac{1}{2}x_1 - 2x_2 + 9x_3$$

Please read pages 1 and 2 for more examples.

LINEAR EQUATION. Look at **Definition 2 and 3** carefully:
The equation $c_1x_1 + c_2x_2 = k$ is the general linear equation in two variables and $c_1x_1 + c_2x_2 + c_3x_3 = k$ is the general linear equation in three variables. The general linear equation in n variables has the form

$$c_1x_1 + c_2x_2 + \ldots + c_nx_n = k \ .$$

Finitely many of such equations form a system of linear equations.

NOTE: $x_1 - 2(x_2)^3 + 5\sqrt{x_3} = 0$ is **NOT** a linear equation.

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