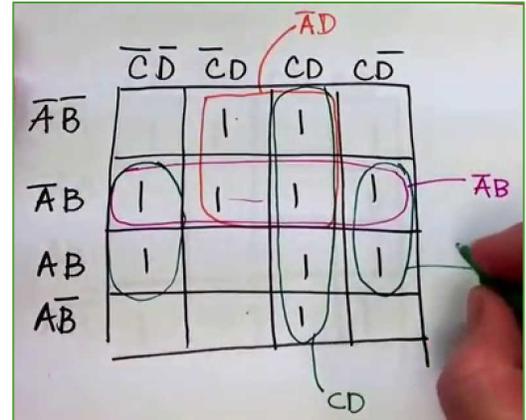


(30 pts) Approx. 3 days

Our unit starts with an introduction to a new way of simplifying logic expressions: Karnaugh Mapping (K-Mapping). This new process will support and/or replace the job of simplifying with Boolean algebra rules. Instead, K-Mapping takes advantage of very specific patterns in grids of minterm combinations to let us simplify potentially large logic expressions in a few simple steps.

At the right you see an example of a K-Map being analyzed, and below are the general steps that we'll follow whenever we try to use K-Mapping to simplify a logic expression. In this part of the unit you'll watch a demonstration of that work in action, review the rules and patterns, and then practice in an assignment as usual.



K-MAPPING STEPS

1. Draw the right-size grid
2. Label columns and rows with the proper minterms
3. Fill in the grid with 0's and 1's from the unsimplified expression
4. Look for as few grouping of powers-of-two as possible to "use up" all 1's.
5. Write the simplified expression as minterms from your new groupings

1. Start by watching the presentations *Simplifying with K-Mapping* and *K-Mapping*. As you review these presentations, take a full page of notes on the K-Mapping procedure. Make sure that your notes include the following topics:
 - a. How to setup K-Mapping grids (there is a handy reference on the website)
 - b. How to fill in the 0's and 1's into a K-Map
 - c. What patterns/groups to look for
 - d. How to turn your groupings into logical minterms
 - e. At least a few examples of K-Maps in action!
2. Complete the K-Mapping Assignment. Make sure that you show your work as you move through the assignment!
3. Have Mr. Benshoof check-off your completed assignments before you move on!

Part 1: Tasks	10 points	8-6 points	5-0 points
K-Mapping Notes	+ Watch both the <i>Simplifying with K-Mapping</i> and <i>K-Mapping</i> presentations + Take a full page of notes on those concepts	- Less than a full page of notes on K-Mapping - Notes are missing important parts	- Very brief or no notes in your engineering notebook
	20 points	16-10 points	9-0 points
K-Mapping Assignment	+ Complete the <i>K-Mapping Assignment</i> + You showed your work throughout the K-Mapping Assignment	- Assignment incomplete - Assignment not corrected - Little work shown	- Assignment missing - Assignment totally incomplete - No work shown

