Blasts from the Past

The Locker/Prison Problem

Imagine you are at a school with 100 lockers all shut. Some of the lockers have a special surprise in them and you must figure out which ones hold the gift. To do so follow these instructions…
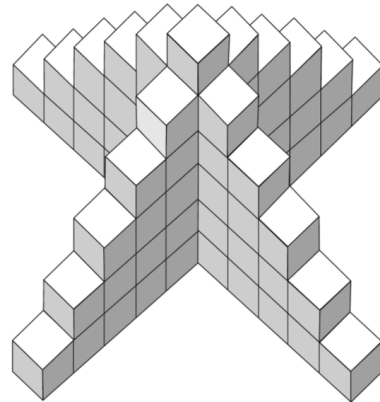
- The First student walks through and opens every locker.
- The second student goes through and closes all the lockers that are multiples of 2. (#2, #4, #6, etc)
- The third student CHANGES every 3rd locker (closes it if it is open, opens it if it is closed)
- The fourth student, CHANGES every 4th locker –through all 100
- The fifth, sixth and all the rest of the 100 students continue the same pattern of closing or opening based on the CHANGE up to #100.

  ➢ If there are 100 lockers total opened in this pattern by 100 kids, which lockers will be open at the end?

The Condo Challenge

Building planners are designing a new condominium.
They are not sure yet how tall they wan the building to be.

1. How many cubes are needed to build this 6-high model?
2. How many cubes would be needed to build a 12-high model?
3. How many cubes would b needed to build a model of any height?

Eric the Sheep

Eric is standing at the end of a line of fifty sheep, waiting to be sheared. He is hot and impatient. Each time a sheep is sheared and Becky, the sheep shearer, turns to put the wool away, Eric sneaks around the next two sheep in line. If there are 50 sheep in front of Eric to start with, how many will be shorn before Eric gets to the front?

Knights of the Round Table *or* King Arthur's Problem

King Arthur has a daughter and wants to marry her off to one of his knights. The way he chooses is to have them all sit down at the round table and he'll say to the first knight on his right, "You live." He'll say to the second knight, "You die" and kills him, and lets the third one live and fourth one die and so forth around and around the round table until there's only one left. The thing you have to do is figure out is what seat to sit in depending upon how many knights will be at the table (assuming of course that you'd rather marry the daughter than get stabbed by King Arthur).