CS 315 - Day 28, Review, and more Induction

Content on upcoming exam includes:

Heaps

BST

BST Insert/Delete

BST Traversal

RB Tree Insert

BFS

Dijkstra's

In-class w/***assigned groups of three (3)***, write 0. and 1. on board as ground rule(s):

0. No devices.
1. Intro: Name, POE, Icebreaker.
2. Pick someone on the group who will report out.
3. Create an exam problem, both problem and associated solution, for the topic area assigned from above.
4. If your group finishes early, create a problem in one of the other content areas.
5. If time, create a Predicate, involving postage, which can be proved using Induction.

Prove the following Predicate:
$P(n)$: Postage of n cents can be made from 6 cent and 7 cent stamps, $n \geq 30$.

Proof Without Words: The American Flag Inspires a Proof that the Sum of the First n Positive Odd Integers is n^2

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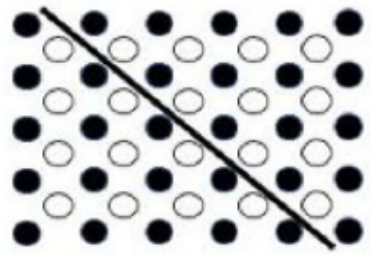
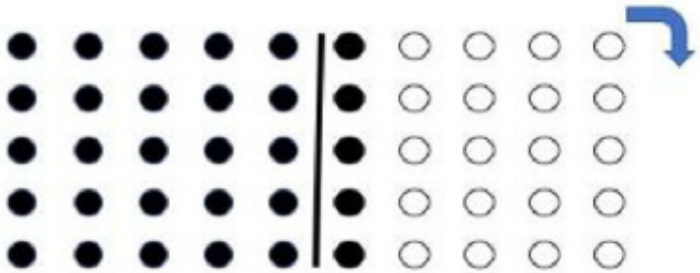
During a dull moment at a presentation my eyes wandered to an image of the American flag, where I saw a Proof Without Words that the sum of the first n positive odd integers is n^2, (in the case where $n = 5$).

Theorem. $1 + 3 + 5 + \cdots + (2n - 1) = n^2$.

Proof.





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