

Here are some homework problems, based upon the filmstrips we watched.

**Problem 1.** *Two people play a game with the following words: HOT, TANK, TIED, FORM, HEAR, BRIM, WOES, WASP, SHIP. They take turns crossing out a word and initialing it. The first player who crosses out three words that have the same letter in common is the winner. (For instance, if someone crosses out HOT, FORM and WOES, they win because they have the letter "O" in common). Prove that, with best play, the first player cannot lose.*

**Problem 2.** *A boat is floating in a tank. A lot of gold coins are in the boat. The coins are now tossed overboard and sink to the bottom of the tank. Does the TANK's water level go up, go down, or stay the same? Why?*

**Problem 3.** *A pond has the shape of a circle. An island is at the center. You want to go from the shore to the island. You have two planks, each of which is a trifle too short to extend from the shore to the island. How do you get there, using only the two planks?*