

I U P U I
MATH CLUB TEASER #2

October 10, 2008
(due October 17, 2008)

SOLUTION

The prisoners placed 1 piece of chain (10 pounds) in a basket and sent it down. Into the empty basket that came up they put 2 pieces of chain (20 pounds). They kept adding 2 pieces to each basket that came up until they sent a 70-pound load down, getting back a 60-pound load.

Carol (80 pounds) replaced the 6 pieces of chain (60 pounds). She descended as 7 pieces of chain came up. Alice unloaded 6 pieces and signaled Carol to climb out. She lowered the remaining piece of chain, bringing the empty basket up.

Carol got in the basket again (total weight $80 + 10 = 90$ pounds) allowing Alice (100 pounds) to descend. They both got out; Alice on the ground and Carol in the tower. Down went the basket still with 1 piece of chain in it, and up came the other basket, now empty.

Bob and Carol repeated the first set of actions and soon lowered Carol to the ground again. Alice and Carol ($100 + 80 = 180$ pounds) got in the basket, allowing Bob (180 pounds) to descend with 1 piece of chain. Now the two women were in the tower and Bob on the ground.

Carol was brought down as before, then Alice replaced her on the ground. In due time, Carol made her fourth and last trip down, bringing up 7 pieces of chain.

As she stepped out, the friends fastened the basket to keep the chains in the top basket from falling and waking up Professor Zerep.

SOLVED BY:

Arbitrary but Constant, Captain Nemo, Dream Team, the Geodesic Giant, Men at Work, the Residues, Terminator.