

Logic-2. Other Homework problems

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Finish the problems from the class handout.

Competition practice

Exercise 1. 2003 AMC 10 A, Problem 24. Sally has five red cards numbered 1 through 5 and four blue cards numbered 3 through 6. She stacks the cards so that the colors alternate and so that the number on each red card divides evenly into the number on each neighboring blue card. What is the sum of the numbers on the middle three cards?

Exercise 2. 2004 AMC 10 A, Problem 6. Bertha has 6 daughters and no sons. Some of her daughters have 6 daughters, and the rest have none. Bertha has a total of 30 daughters and granddaughters, and no great-granddaughters.

How many of Bertha's daughters and granddaughters have no daughters?

Exercise 3. 2001 AMC 8, Problem 20. Kaleana, Quay, Marty and Shana discuss their test scores. Kaleana is the only one who shows her score to the others. Quay says, "At least two of us have the same score." Marty says, "I didn't get the lowest score." Shana adds, "I didn't get the highest score." Rank the scores from lowest to highest for Marty (M), Quay (Q) and Shana (S).

Challenge Problems

Exercise 4. Baker, Cooper, Fletcher, Miller, and Smith live on different floors of an apartment house that contains only five floors. Baker does not

live on the top floor. Cooper does not live on the bottom floor. Fletcher does not live on either the top or the bottom floor. Miller lives on a higher floor than does Cooper. Smith does not live on a floor adjacent to Fletcher's. Fletcher does not live on a floor adjacent to Cooper's. Where does everyone live?

Exercise 5. Mary Ann Moore's father has a yacht and so do each of his four friends: Colonel Downing, Mr. Hall, Sir Barnacle Hood, and Dr. Parker. Each of the five also has one daughter and each has named his yacht after a daughter of one of the others. Sir Barnacle's yacht is the Gabrielle, Mr. Moore owns the Lorna; Mr. Hall the Rosalind. The Melissa, owned by Colonel Downing, is named after Sir Barnacle's daughter. Gabrielle's father owns the yacht that is named after Dr. Parker's daughter. Who is Lorna's father?