

Math Circle 10/1/2016 Meeting: Challenge of the week

Make sure that your solution is correct, complete, and clearly written. You should not expect much credit if your proof refers to a false statement, or even if all your statements are true but you forgot to tell us "why?" It is one of the purposes of the Circle to help you improve your "essay-proof" writing style as well as your logical skills.

Please remember that the Challenge is **individual**. Although we strongly encourage cooperation and help among the participants of the Circle, the Weekly Challenge will be one exception to this rule: you may consult your notes, but you may not ask other people to help you.

Problem 3. An evil dragon locked six gnomes in the cave and told them "I happen to have seven pointed hats, in the seven rainbow colors. Tomorrow morning I will blindfold you all and will put a hat on each one of you, and will hide the remaining hat. After that I will remove your blindfolds so you will see the hats of other gnomes, but not the one on your own head. I will not allow you to talk but will take each of you to the other room and ask to name the color of the hidden pointy hat. If at least three of you will give the correct answer, I'll let you go. If not – eat you for a lunch." Can six gnomes devise the strategy to avoid being eaten tomorrow?