

Blacksburg Math Circle

Challenge of the week from Combinatorics 9/17/2022

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.

1. How many three-digit numbers begin with 4, 6 or 7 AND end with 0 or 1?
2. There are 35 students in our class. What is the probability that at least two students in class share the same birthday?