

# 2023 Gauss Math Tournament Target Round (Div. 1)

June 10, 2023

1. The ratio of the lengths of the sides of two similar triangles is  $1 : 3$ . If the area of the smaller triangle is 16 square units, what is the area of the larger triangle?
2. In a drawer, there are 3 pink socks, 4 purple socks, 7 orange socks, 11 yellow socks, and 8 blue socks. Assuming any two socks of the same color make a pair, what is the minimum number of socks Andy has to take out while blindfolded to ensure that he has one pair?
3. The last number in an arithmetic sequence is 120, and the first term is 10. If the common difference is 5, how many terms are there in the sequence?
4. A toy store sells two types of puzzles: 200-piece puzzles and 500-piece puzzles. If a customer buys a total of 8 puzzles with a total of 2500 puzzle pieces, how many 200-piece puzzles did they buy?
5. In a group of bunnies, there are 17 white rabbits and spotted rabbits combined, 25 white rabbits and black rabbits combined, and 18 black rabbits and spotted rabbits combined. Each rabbit can only be white, black, or spotted. How many black rabbits are there?
6. Every student in a group of 10 students needs to shake hands with each other exactly once. How many handshakes occur?
7. A class has 15 students, and they need to select 3 students for the school dance planning council. How many different ways can the council be selected?
8. Mr. Johnson has 7 indistinguishable pieces of candy he has to distribute to Abel, Bella, and Claire. However, he has been told he must give at least 1 piece to each of them. In how many ways can Mr. Johnson distribute these 7 pieces?