Using your knowledge of position, distance, and displacement, provide the correct answers to the following questions. Make sure to completely answer each question and to show all of your work.

1. Alice climbs 100 meters directly up the face of a cliff to reach the summit. Her friend Peter hikes the long way around taking a 3 km trail to meet her at the top of the cliff. Compare the distance and displacement of the two friends.
2. Two children play a game of catch, running back and forth to catch each throw from the other. The ball makes the following motions: 5 meters right, 8 meters left, 3 meters right, 6 meters left, 15 meters right, and 4 meters left.
   1. Calculate the total displacement of the ball.
   2. Calculate the total distance the ball traveled.
   3. Calculate the total distance traveled by the child on the left.
   4. Calculate the total displacement of the child on the right.