This year, Canada celebrated its sesquicentennial, the 150th anniversary of Confederation. Many people had or are having special celebrations to honour this occasion.

For one of the gatherings, an invitation was made by overlapping three squares, as shown below. Each of the squares has a positive integer side length. Side $AB$ of the smallest square lies along side $AC$ of the middle square which lies along side $AD$ of the largest square. The area of the middle square not covered by the smallest square is $33 \text{ cm}^2$.

If $BC = CD$, determine all possible side lengths of each square.