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1) Euler had proved this before, but it was the equation $\Delta V = 0$

2) Born in Brunswick. Father was a day laborer

3) Yes this can be constructed with a compass and ruler alone and Gauss proved it

4a) A group must have the properties of associativity, having an identity, and every element having an inverse. In this set, the identity element is 0 since doing the operation on any element and 0 will result in that element. It is associative, seeing as all our group members are less than 6, and each element has an inverse.

4b.) This subset is not a group since when we do the operation on 1 and 3 we do not have a result that is also in the subset.

4c) Firstly it contains the identity element. Also, it is associative since when we do the operation on any 2 elements the result is also in the subset. Therefore this is a group. Furthermore, its elements are also in G and therefore it is a subgroup