Homework 9: Graphs and Geometry

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Problem 1.
Is it possible that in a class of 30 people there are 9 people each of whom has 3 friends in the class, 11 people with exactly 4 friends each and 10 people with 5 friends each?

Problem 2.
In a group of 5 people each person wrote on the blackboard how many people they are friends with (among these 5 people). The numbers on the blackboard turned out to be $4, 4, 4, 4, 2$. Is this possible, or did someone make a mistake?

Problem 3.
Equal segments AB and CD intersect at a point O, so that $AO = OD$. Show that $\triangle ABC = \triangle DCB$.