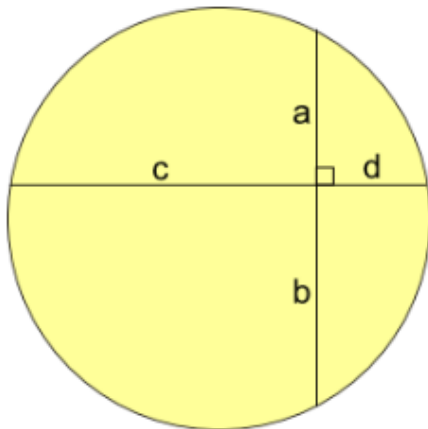


A Level Further Maths Preparation

Attempt each of these three problems. All the knowledge you need, you knew at GCSE. The key is can you select the correct knowledge required to solve each problem – this is a skill that is crucial for studying Further Maths! Write your answers, together with lots of lovely working, on paper ready to hand in during your first maths lesson.

Can you solve them and describe ways in which each might be connected to one or both of the others?

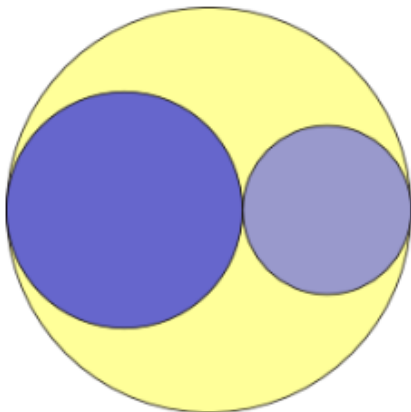
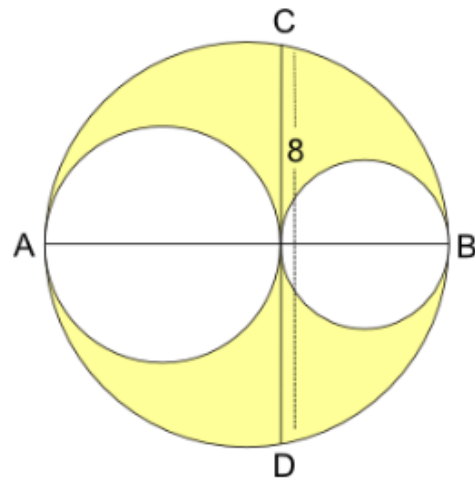


Firstly :

Why does $ab = cd$?

Secondly:

These three circles are drawn so that they touch each other and their centres are all on the line AB. If CD is 8 units in length, what is the area of the part that is shaded yellow?



Lastly:

If the area shaded yellow is equal to the area of the larger of the two circles that are shaded blue, what is the relationship between the radii of the three circles?