Matching circles and equations

Problem

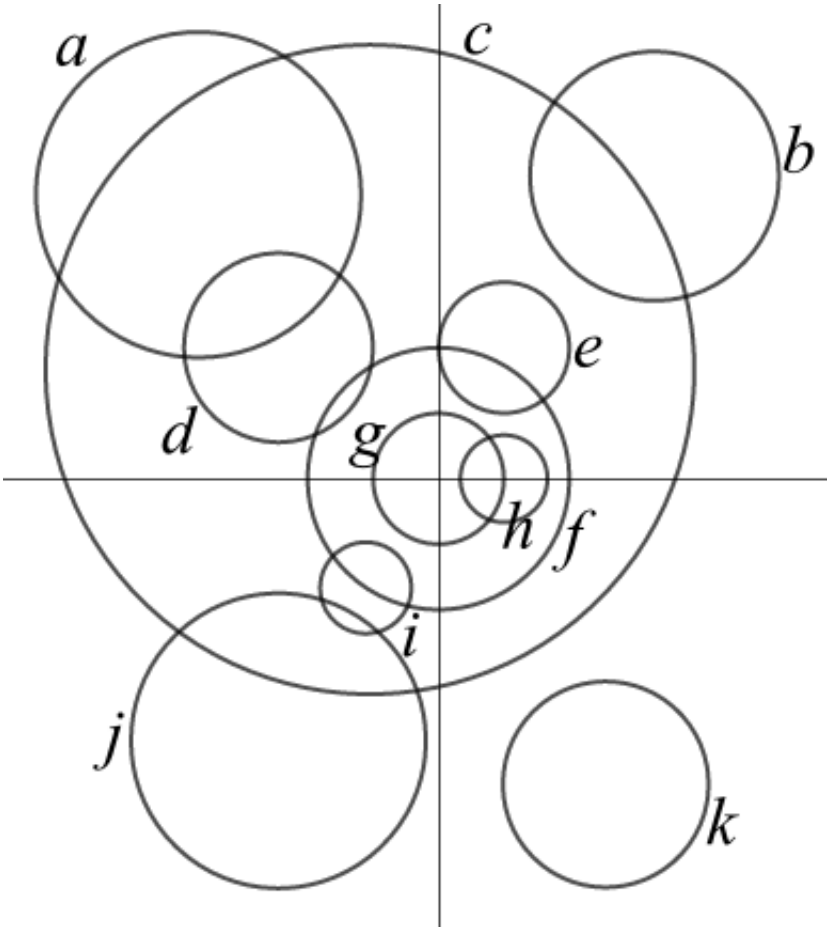

Figure G2_RT7_2.1: Circles

We have thought of 13 circles. Some of them are represented in the above diagram, with the labels of the x-axis and y-axis removed. Here are equations for some of the circles.

1. $(x+10)^2+(y+15)^2=4\pi^2$
2. $x^2+y^2=324$
3. $(x+22)^2+(y+36)^2=411$
4. $(x+3\pi)^2+(y-15)^2=1990$
5. $\left(x-21\sqrt{2}\right)^2+\left(y-24\sqrt{3}\right)^2=131\sqrt{5}$
6. $(x+33)^2+(y-39)^2=500$
7. $x^2+y^2=9$
8. $(x-23)^2+(y+42)^2=200$
9. $x^2+y^2=81$
10. $(x-18)^2+(y+36)^2=1990$
11. $(x-9)^2+y^2=36$

Can you match them up, find the missing equations and construct the remaining circles on the diagram?

© University of Cambridge unless indicated otherwise. All rights reserved.

Relevance

E2 How is the solution of equations related to problems in geometry?

G2 What is the connection between algebra and geometry, and how can we exploit it?

- Multiple representations

© University of Cambridge unless indicated otherwise. All rights reserved.