# Sangaku-inspired geometry

## PRACTICE WORKSHEET



Name: _____ Date: _____

Show your working in the blank space or on separate paper. Sketch labelled rods/beads when asked to represent a number.

**1** A circle touches all four sides of a square of side 12. Find its radius.

**2** A circle touches all four sides of a square of side 14. Find its radius.

**3** A circle touches all four sides of a square of side 10. Find its radius.

**4** A circle touches all four sides of a square of side 24. Find its radius.

**5** Two equal circles, each tangent to two sides at opposite corners of a square of side 20, also touch each other. Find their radius.

**6** Two equal circles, each tangent to two sides at opposite corners of a square of side 16, also touch each other. Find their radius.

**7** Two equal circles, each tangent to two sides at opposite corners of a square of side 12, also touch each other. Find their radius.

**8** Two equal circles, each tangent to two sides at opposite corners of a square of side 8, also touch each other. Find their radius.

**9** A circle touches all four sides of a square of side 14. Find the area outside the circle, inside the square.

**10** A circle touches all four sides of a square of side 10. Find the area outside the circle, inside the square.

**11** A circle touches all four sides of a square of side 24. Find the area outside the circle, inside the square.

**12** A circle touches all four sides of a square of side 20. Find the area outside the circle, inside the square.

Practise interactively and explore the method:

https://goofergames.com/math/world/sangaku

Free for educational use: teachers may print and share the worksheets with their students.