

Maths Challenge - Week 295 – Problems

Welcome to week 295 of our weekly maths challenge, with problems and puzzles posed by David Browning, Rod Marshall, Ian Stewart, Annie Stothers and the [u3a Maths and Stats Subject Adviser](#) - David Martin. If you would like to share your ideas on how to solve these puzzles please join our [learning forum](#) or discuss within your u3a and interest group. Check back each week for the solutions and let us know how you get on by contacting the [u3a office](#). New maths puzzles will go up onto the website every Thursday.

Question 1.

Remove one digit from 2025 to make the largest possible number divisible by 9.

Question 2.

A metal cylinder, 12 cm diameter and 8 cm long, is to be melted down and recast as a sphere. What will be the diameter of the resulting sphere?

Question 3.

Find all prime numbers p such that if $p^4 + 2$ is prime then so is $p + 4$.

Question 4.

The diagram below shows the surface of a 50 cm by 50 cm square game board. The radius of the red circle is 5 cm and the centre of the circle coincides with the centre of the square. There is a raised edge around the perimeter of the square and when a circular disc of radius 2 cm is rolled on to the board, the raised edge means that all of the disc lands within the square. On the assumption that the disc is equally likely to land on any part of the board, what is the probability that no part of the disc covers any part of the red circle?

