Maths Challenge - Week 302 – Problems

Welcome to week 302 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.

What is the largest possible angle in an isosceles triangle, in which the difference between the largest and smallest angles is $6°$?

Question 2.

The eight-digit number "$aaaabbbb$", where a and b are digits, is a multiple of 45. What are the possible values of a, $a \neq 0$?

Question 3.

How many three-digit whole numbers are divisible by 3 or 4?

Question 4.

In the diagram below, the smaller circle has a radius of 20 cm and the larger circle has a radius of 25 cm. The centres of the circles are marked as A and B and the distance between A and B is 40 cm. What is the area of the overlap of the two circles?