Maths Challenge – Week 43
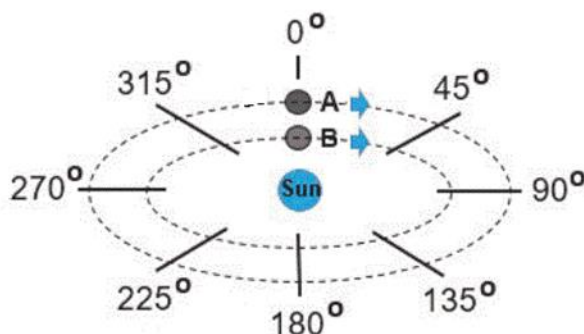
Welcome to week 43 of our weekly maths challenge, with problems and puzzles posed by Gordon Burgin, Andrew Holt and the U3A Maths and Stats Subject Adviser - David Martin.

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 u3a office. New maths puzzles will go up onto the website every Thursday.

Week Forty-three

Question 1.

Two planets are in line with each other and the sun. The outer planet A will orbit the sun every twelve years. The inner planet B takes three years. Both move in a clockwise direction. When will they next form a straight line with each other and the sun?

Question 2.

A circular logo is enlarged to fit the lid of a jar. The new diameter is 50 per cent larger than the original. By what percentage has the area of the logo increased?

Question 3.

A laboratory has home and visiting researchers. Each home researcher has two more home colleagues than visiting colleagues and each visiting colleague has half as many visiting colleagues as home colleagues. How many home and visiting researchers work in the laboratory?

Question 4.

Find the sum of the first 75 terms of the arithmetical progression: 60, 40, 20, …