# Maths Challenge – Week 56

Welcome to week 56 of our weekly maths challenge, with problems and puzzles posed by Gordon Burgin, Andrew Holt, Rod Marshall, Ian Stewart 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 Fifty-six**

**Question 1.**

Consider all the three-digit numbers that can be formed using each of the numbers 1, 2 and 3 just once. What is their sum?

**Question 2.**

Three Mondays of a month fall on even numbered dates. Which day of the week was the 21$^{st}$ of the month?

**Question 3.**

If a train heading east takes 4 seconds to pass a particular point while a train of equal length heading west takes 5 seconds, how long will it take the two trains to pass each other?

**Question 4.**

At a stall at a village fete, there is a bag containing 16 table tennis balls. 2 of the balls have the number 10 on them; 3 have the number 5; 5 have the number 2; and 6 have the number 1. Anyone who pays £1 can choose two balls from the bag. The first ball chosen is not put back into the bag until after the second ball has been chosen. If the numbers match, their prize is the number of pounds shown on the ball e.g., £10 if they choose 2 balls with the number 10. If £200 is paid in entry fees, how much would the stallholder expect (on average) to pay in prizes?