

Maths Challenge – Week 53

Welcome to week 53 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-three

Question 1.

The price of a toy was marked down by 40% in a sale. If the sale price was £18, what was the original price of the toy?

Question 2.

In 2015 the populations of two cities were equal. From 2010 to 2015, the population of the first of these cities increased from 120,000 by 20% and the population of the second city decreased by 10%. What was the population of the second city in 2010?

Question 3.

A company sells its products in cylindrical containers which are 8 cm high and have a circular base with radius π cm. The product is delivered to shops in cardboard boxes holding 12 containers, arranged in 4 rows of 3. To reduce cardboard usage, the company decides to pack its products in containers which are cubes each holding the same amount of product as the current cylindrical containers. By what percentage will the company reduce the amount of cardboard used for the top and bottom of a box of 12 containers; and what is the percentage reduction for cardboard used for the sides?

Question 4.

Tom, Dick and Harry are brothers and their ages are all prime numbers. The difference between the ages of any two of them is also prime. What are the three ages?