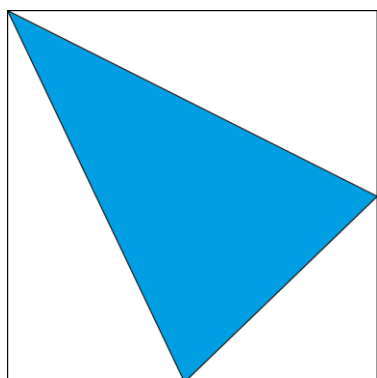


Maths Challenge - Week 292 – Problems

Welcome to week 292 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 fraction of the square has been shaded, given that the central shaded triangle has two of its vertices at the midpoints of sides of the square?

Question 2.

Cate and her friend cycle from A to C, passing through B. Before they reach B, Cate asks her friend how far they have cycled. Her friend replies “one third as far as it is from here to B”. Ten miles later (after they have passed B) Cate asks her how far they must cycle to reach C. Her friend replies again “one third as far as it is from here to B”.

How far is it from A to C?

Question 3.

Which positive integers are equal to 5 times the sum of their digits?

Question 4.

Andrew, Beth, Charlie and Diana will receive several twenty-pound thank you vouchers from their boss Elaine. In how many ways could Elaine distribute her nine vouchers if each person receives at least one voucher?