Mathematics Problems for week fifty www.u3a.org.uk posed by Gordon Burgin, Andrew Holt, Rod Marshall, Ian Stewart and David Martin

Week Fifty

Question 1.

Can you find a way of placing the digits 3, 5, 7 and 9 in a square grid in such a way that all four of the two-digit numbers reading across and down are prime?

Question 2.

Which is the better fit – a round peg in a square hole or a square peg in a round hole?

In this question, "better fit" means filling more of the available space.

Question 3.

John has 12 more cattle than Bill. George has twice the total number of cattle which John and Bill have. ½ of Bill's cattle, ⅔ of John's cattle and ¾ of George's cattle give birth to a calf. Each birth is of a single calf. There are now 101 calves. How many cattle did Bill have before calving began?

Question 4.

Every 10 seconds, a cell sub-divides and becomes two cells. Immediately after every second sub-division, ¼ of all cells die. How long will it take for one cell to increase to over 1 million cells?