

Problem for 2014 November

Communicated by Dan Jurca

The following problem appeared on an assessment exam given to students in China entering kindergarten.

$$1111 = 0 \qquad 5555 = 0$$

$$2222 = 0 \qquad 8193 = 3$$

$$7662 = 2 \qquad 8096 = 5$$

$$9313 = 1 \qquad 4398 = 3$$

$$0000 = 4 \qquad 9475 = 1$$

$$6666 = 4 \qquad 9038 = 4$$

$$2172 = 0 \qquad 3148 = 2$$

$$2889 = ?$$

Solution by Dan Jurca

$2889 = 5$. In each case the number on the right hand side of the equality equals the number of “loops” in the digits on the left hand side of the equality. For example the string 7662 contains two loops, one in each 6. Since writing 2889 requires forming 5 loops, and drawing loops may present difficulties for one entering kindergarten, we conclude that “ $2889 = 5$ ”.

Also solved by Sue Benjamin, Jan van Delden (the Netherlands), Parth Desai, Maryna Longnickel, and Winston Teitler