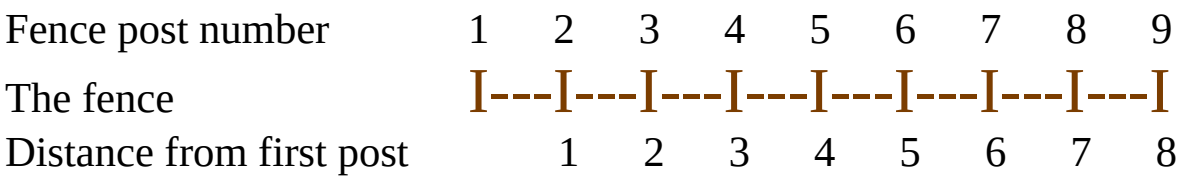
The Fence Post Problem

Lenka, the farm manager, asked her helper Xavier to measure the length of their horse enclosure fence. The fence had nine (9) posts, equally spaced at one (1) metre intervals. Xavier did the calculation nine times one (9 x 1) to give nine (9) metres for the total length. Lenka told him that this was incorrect; the horse enclosure was eight (8) metres long.

What had gone wrong?



From whatever end you measure from, the first post does not have an effect on the length of the fence.

If the fence had 100 posts then the length of the fence would be:
(100 – 1) x 1 that is 99 x 1 that is 99 metres.

This mistake gets made in the world of numbers.

How many whole numbers (integers) are there in the range 2 to 5 (2, 3, 4, 5) it's 4 and not 5 – 2 (= 3).

Numbers are like the fence posts. Doing a subtraction (take-away) is like the length of the fence.

So the number of integers in a continuous range of numbers (none missing in the range) is biggest – smallest + 1

The total in the range is always one (1) more than the difference between the two numbers because the first number is like the first fence post.

The total in the range 1 to 100 gives (100 – 1 + 1) = 100
The total in the range 2 to 100 gives (100 – 2 + 1) = 99

The mistake of being too big or too small by one (1) happens sometimes in engineering and particularly in computer programming with a common reason being the fence post problem!