

Two ants race across a table 59 cm long.
One travels at 5.01 cm/s and the other at
3.99999 cm/s.
When the first one crosses the finish line,
how far behind is the second one?

$L=59$ cm - the length of the table
 $v=5.01$ cm/s - the speed of the first ant
 $u=3.99999$ cm/s - the speed of the second ant
 D - the distance between the ants, when the first one crosses the finish line.
The task: to find D .

Solution:

The time the first ant needs to race across the table is $t=L/v$. Then the distance, which the second ant passes for the same time is $a=ut=u(L/v)$.

So, we can find the distance between the ants, when the first ant crosses the finish line $D=L-a=L-u(L/v)$,

$$D=L(1-u/v)$$

ANSWER: $D=11.89432934$ cm.