

September 16<sup>th</sup>

Two ants are racing around the perimeter of a 1cm square. They start at the same vertex and both go clockwise. One ant runs at 1cm/s and the other at 3cm/s.

How far apart will they be after 21 seconds?

How far apart will they be after 21 seconds, if one ant goes clockwise and the other anticlockwise?

Each "lap" is 4cm

After 21 seconds

Ant A has moved 21cm.

which is 5 laps, plus 1cm.

Ant B has moved 63cm

which is 15 laps, plus 3cm

So after 21 seconds they are at opposite corners, **2cm apart**

If they move in opposite directions, after 20 seconds they are both back where they started.

After the next second

Ant A has moved 1cm clockwise

Ant B has moved 3cm anti-clockwise

So after 21 seconds they are at the **same point**.