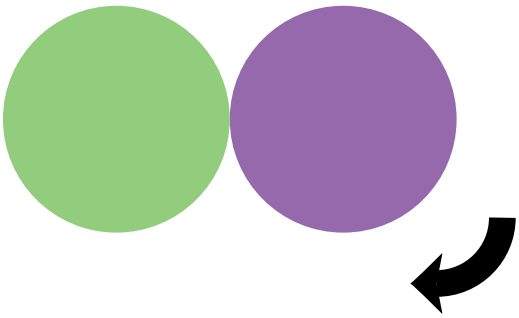
Rollin' rollin' rollin'

Problem sheet



Imagine two identical circles. One is fixed (green). The other (purple) rolls around the fixed circle so that their circumferences are always touching.

- What is the locus of the centre of the purple circle?
- How long is the locus?
- How many times does the purple circle turn on its way around the green circle?

Imagine now that the purple circle has half the diameter of the green circle.

- What is the locus of the centre of the purple circle now?
- How long is this new locus?
- How many times does the purple circle turn on its way around the green circle?

What happens if the purple circle is twice the diameter of the green circle?

You might like to investigate using green circles of different diameters.