Notes from Lesson 6: Area of Sector
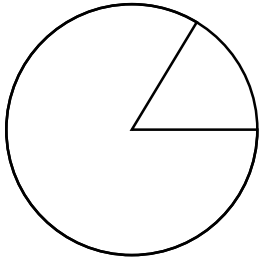
A sector is a cut of from a circle that looks like a piece of cake:
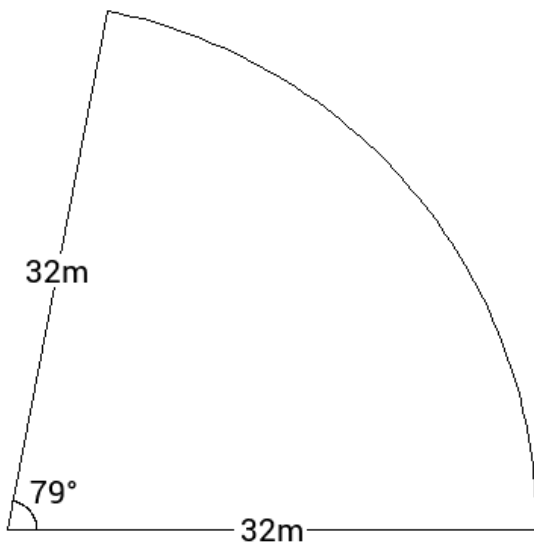

Now, we know the area of a circle is πr^2… therefore, the area of the part of the circle we are trying to find out is just whatever fraction of the area that the sector is a fraction of the circle.

So the area formula becomes

$$\text{area} = \pi r^2 \times \frac{\theta}{360}$$

Because there are 360° in a circle and θ is the size of the angle.

Therefore the area is going to be $\pi \times 32^2 \times \frac{79}{360} = 706\text{m}^2$ (3sf)

We could also work out the area using radians. There are 2π radians in a circle… so to convert from degrees to radians you $\div 360 \times 2\pi$ and to go the other way you $\times 360 \div 2\pi$

This would mean the angle would be 1.379 radians.
When using radians the formula becomes

$$\text{area} = \pi r^2 \times \frac{\theta}{2\pi} = r^2 \times \frac{\theta}{2}$$

Therefore the area of our sector is

$$\text{area} = 32^2 \times \frac{1.379}{2} = 706\text{m}^2 \text{ (3sf)}$$