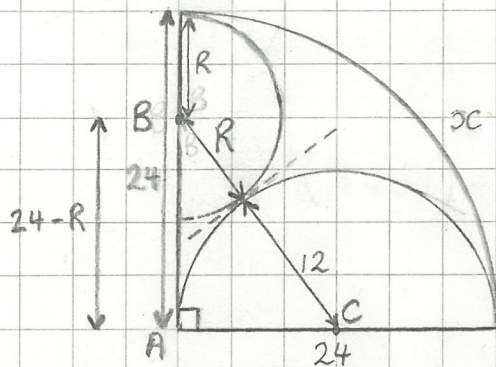


All measurements are in metres



Let  $R$  be the radius of the Green Glade.  
As the outer shape is called a 'quadrant',  
the angle at point  $A$  must be  $90^\circ$ .

The radius of the Orange Orchard is 12,  
as its diameter is 24.

Let  $x$  be the length of the arc of the outer shape.

Solve for  $x$ :

$$\text{perimeter} = 2\pi r$$

As this is a quarter of the circle, the length  
of the arc =  $\frac{2\pi r}{4} = \frac{\pi r}{2}$ .

$$r = 24:$$

$$\frac{\pi \times 24}{2} = 12\pi, \text{ so } \underline{x = 12\pi}.$$

Line  $BC$  must be straight as the two semicircles  
have a joint tangent that both radii meet at  $90^\circ$ ,  
making a total angle of  $180^\circ$ , which defines a  
straight line.

Therefore, we are able to apply Pythagoras'  
Theorem on triangle  $ABC$ :

