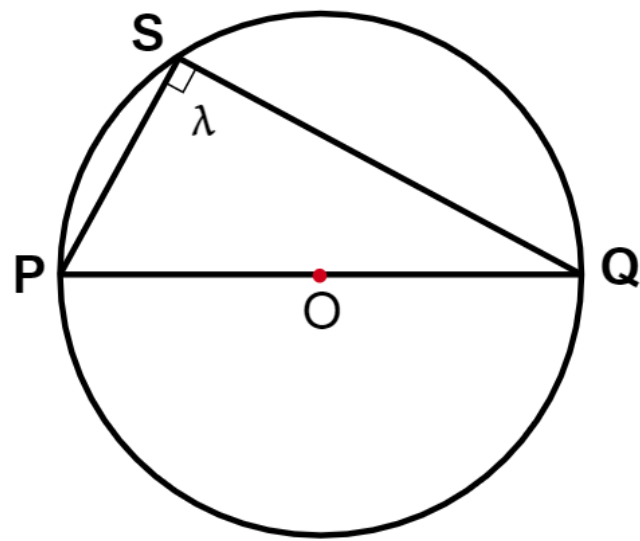


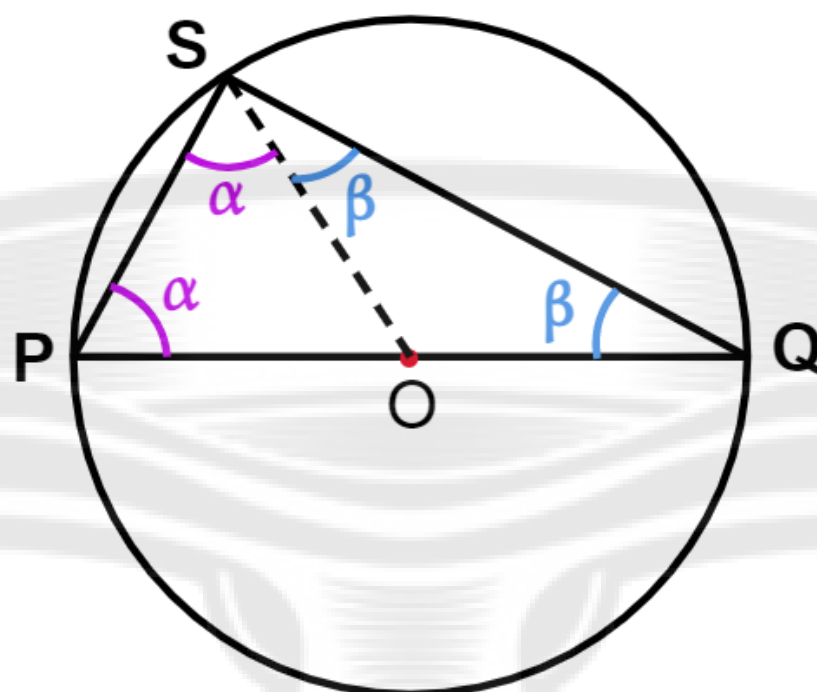
## What's Thales' Theorem?

Thales' theorem states that if P, Q and S are distinct points on a circle with a center O where the segment PQ is the diameter, the triangle  $\Delta PSQ$  has a right angle ( $90^\circ$ ) in point S.

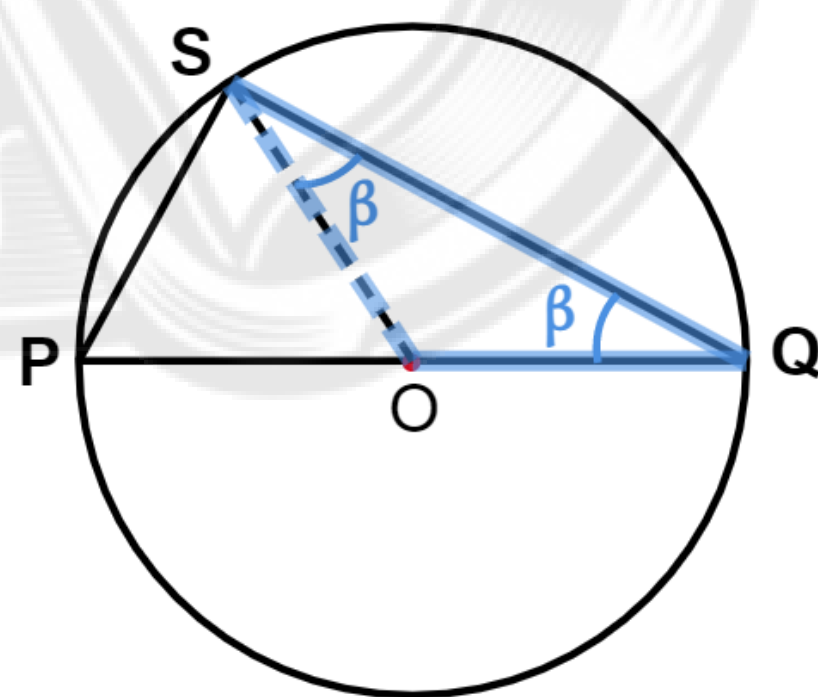
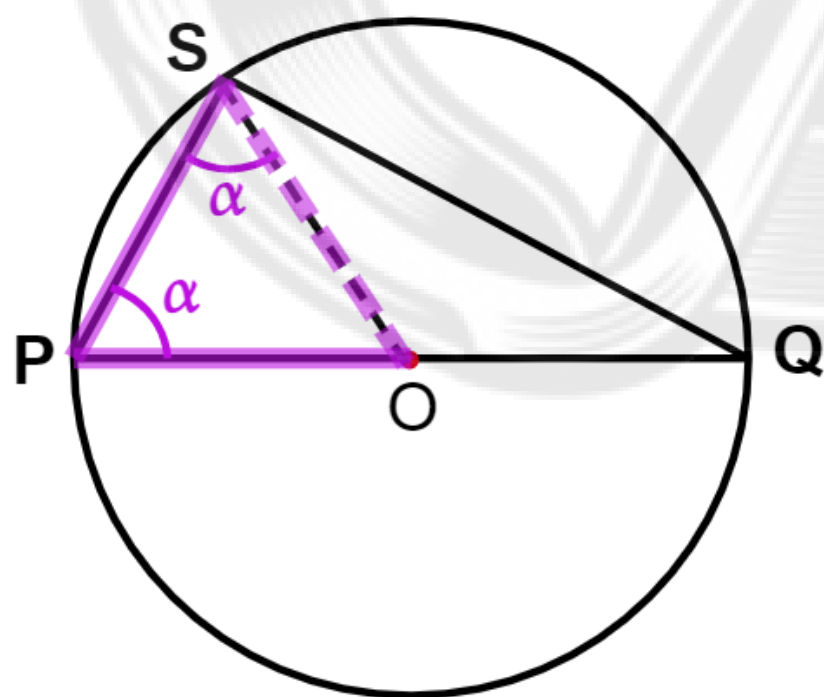


If we add a segment (dashed line) that connects the center O with point S we create 2 isosceles triangles  $\Delta PSO$  and  $\Delta OSQ$  since all radii are equal (OP, OS and OQ).

Lets say that  $\lambda = \alpha + \beta$ .



As they are isosceles triangles, they each have two equal angles:  $\alpha$  and  $\beta$  (see figure).



But the interior angles in a triangle ( $\Delta PSQ$ ) add up to  $180^\circ$ :

$$\begin{aligned} 2\alpha + 2\beta &= 180^\circ \\ \alpha + \beta &= 90^\circ \end{aligned}$$

And as  $\lambda = \alpha + \beta$ , we get that  $\lambda$  is equal to  $90^\circ$ .

$\therefore$  the diameter of a circle subtends a right angle to any point on the circle.