

## Rechthoek om driehoek

7. Vierkant:  $AR = AP$ ; vanwege symmetrie:  $\angle CAR = \angle BAP = x$

$$\text{dus: } x + \frac{1}{6}\pi + x = \frac{1}{2}\pi \quad \rightarrow \quad x = \frac{1}{6}\pi$$

$$\begin{aligned} 8. \quad O'(x) &= -\sin x \cdot \cos\left(\frac{1}{3}\pi - x\right) + \cos x \cdot (-\sin\left(\frac{1}{3}\pi - x\right)) \cdot (-1) \\ &= -\sin x \cdot \cos\left(\frac{1}{3}\pi - x\right) + \cos x \cdot \sin\left(\frac{1}{3}\pi - x\right) \\ &= \sin(-x) \cdot \cos\left(\frac{1}{3}\pi - x\right) + \cos(-x) \cdot \sin\left(\frac{1}{3}\pi - x\right) \end{aligned}$$

$$\text{Met } \sin\alpha \cdot \cos\beta + \cos\alpha \cdot \sin\beta = \sin(\alpha + \beta)$$

volgt:

$$O'(x) = \sin\left(-x + \frac{1}{3}\pi - x\right) = \sin\left(\frac{1}{3}\pi - 2x\right)$$

$$9. \quad O'(x) = 0 \quad \sin\left(\frac{1}{3}\pi - 2x\right) = 0 \quad \rightarrow \quad \begin{aligned} \frac{1}{3}\pi - 2x &= 0 + k \cdot \pi \\ x &= \frac{1}{6}\pi \end{aligned}$$

$$x = \frac{1}{6}\pi \quad \rightarrow \quad O\left(\frac{1}{6}\pi\right) = \frac{3}{4}$$

$$x = 0 \quad \rightarrow \quad O(0) = \frac{1}{2} \quad \rightarrow \quad O \text{ zit in het interval } \left[\frac{1}{2}; \frac{3}{4}\right]$$

10.  $BC$  is middellijn van omgeschreven cirkel  $\rightarrow \angle BSC = 90^\circ$  (stelling van Thales)  
 $AB$  is middellijn van omgeschreven cirkel  $\rightarrow \angle ASB = 90^\circ$  (stelling van Thales)

Dus:  $\angle BSC + \angle ASB = 90^\circ + 90^\circ = 180^\circ \rightarrow \angle ASC$  is gestrekte hoek  
Dus:  $S$  op  $AC$