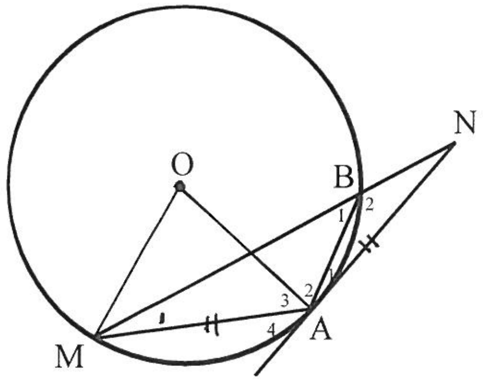
Werkkaart 2015-11 AJ-00013(2)

(1) AN is 'n raaklyn aan die sirkel met AM = AN.



(a) Bewys dat AB = BN.

(b) As $\hat{A}_1 = x$, druk $A\hat{O}M$ uit in terme van x.

(a) $\hat{M}_1 = \hat{N}$ [$\angle^e$ teenoor gelyke sye]

maar $\hat{A}_1 = \hat{M}_1$ [$\angle$ tussen RL & koord]

$\therefore \hat{N} = \hat{A}_1$

$\therefore AB = BN$ [sye teenoor gelyke $\angle^e$]

(b) $A\hat{O}M = 2 \times \hat{B}_1$ [mpts $\angle$ = 2 x omtreks $\angle$]

maar $\hat{B}_1 = \hat{N} + \hat{A}_1$ [buite $\angle$ van Δ]

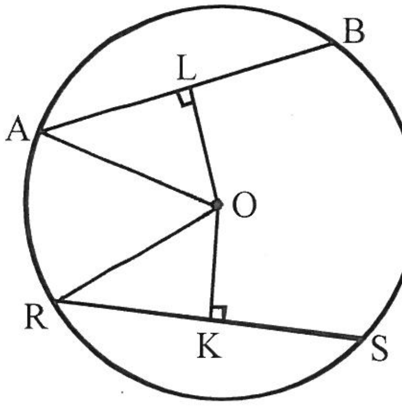
maar $\hat{A}_1 = x = \hat{N}$ [$\angle^e$ teenoor gelyke sye]

$\therefore \hat{B}_1 = x + x = 2x$

$\therefore A\hat{O}M = 2 \times (2x)$

$\therefore A\hat{O}M = 4x$

(2) O is die middelpunt van die sirkel met
RS = 16 cm en OK = 6 cm.
Bereken die lengte van AB, korrek tot 1 des,
as OL = 5 cm.



$RK = KS = 8\,cm$ [Loodlyn uit mdpt ⊙]

In $\triangle$ OKR:

$OR^2 = OK^2 + RK^2$ [Pythagoras]

$OR^2 = (6)^2 + (8)^2$

$= 36 + 64$

$OR^2 = 100$

$\therefore OR = 10$

$\therefore AO = OR = 10\,cm$ [radii]

In $\triangle$ ALO:

$AO^2 = OL^2 + AL^2$ [Pythagoras]

$(10)^2 = (5)^2 + AL^2$

$100 = 25 + AL^2$

$\therefore AL^2 = 100 - 25$

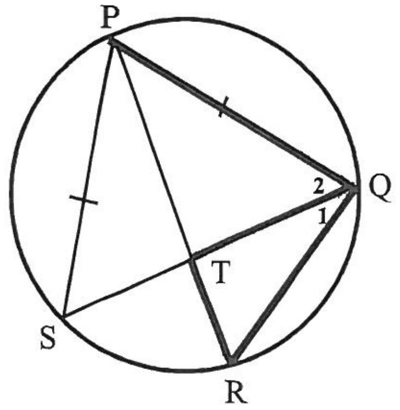
$AL^2 = 75$

$AL = 8,66...$

$\therefore AB = 2 \times 8,66...$ [Loodlyn uit mdpt. ⊙]

$\therefore AB \approx 17,3\,cm$

(3) Bewys dat PQ 'n raaklyn sal wees aan die sirkel wat deur R, Q en T gaan.



[Tebewys: $\hat{Q}_2 = \hat{R}$]

$\hat{Q}_2 = \hat{S}$ [$\angle^e$ teenoor gelyke sye]

maar $\hat{S} = \hat{R}$ [omtreks $\angle^e$ vanaf boog PQ]

$\therefore \hat{Q}_2 = \hat{R}$

$\therefore$ PQ is 'n raaklyn aan die sirkel deur R, Q en T, want die hoek ($\hat{Q}_2$) tussen die lyn (PQ) en "koord" (TQ) is gelyk aan die hoek ($\hat{R}$) in die oorstaande segment.