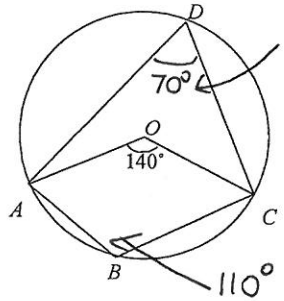
Circle Theorem

(2005)
21)



Half angle at Centre.

Diagram not drawn to scale

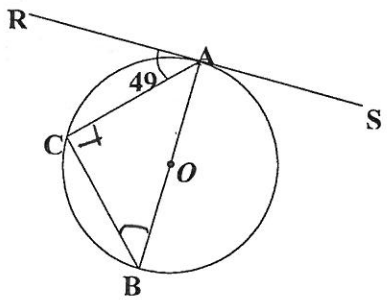
110° opposite in cyclic Quadrilateral

Four points A, B, C, and D lie on the circumference of a circle centre *O*.
Given that $A\hat{O}C = 140°$, find $A\hat{B}C$.
Give a reason for your answer.

$A\hat{B}C = 110°$

(2006)

19 **Three points A, B and C lie on the circumference of the circle centre O.**
The tangent RS meets the circle at A.



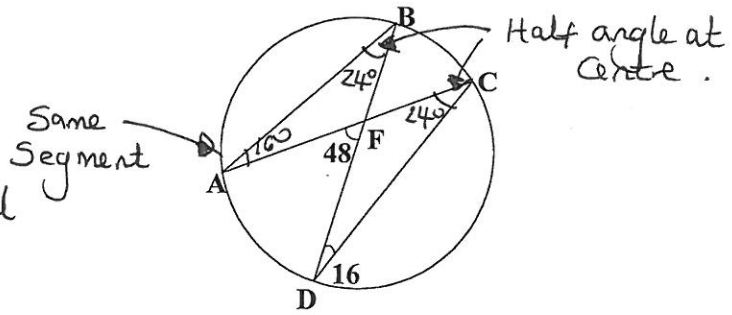
Given that $\hat{RAC} = 49°$, find the following angles giving reasons for your answers.

(a) $A\hat{C}B = 90°$ as triangle in semi-circle is 90°

(b) $A\hat{B}C = 49°$ alternate segment. **[3]**

(2007)

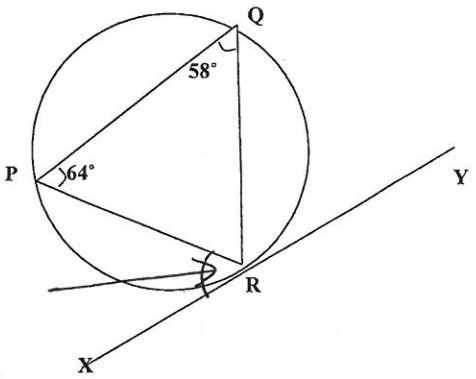
16 **(a) Four points A, B, C and D lie on the circumference of a circle.**
The lines AC and BD intersect at the point F.



Given that $\hat{AFD} = 48°$ and $\hat{BDC} = 16°$, find the size of ABD giving a reason for your answer.

[2]

(b) Three points P, Q and R lie on the circumference of a circle.
The tangent XY touches the circle at R.



56°
alternate segment

Given that $\hat{RPQ} = 64°$ and $\hat{PQR} = 58°$, find the size of PRX, giving a reason for your answer.

[2]

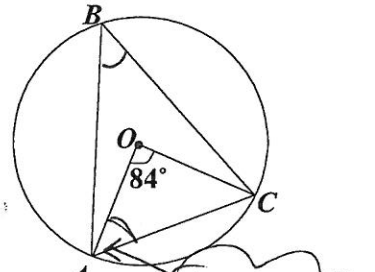
(2008-1)

24 The three points A, B and C lie on the circumference of a circle centre O. Angle $\hat{AOC}$ is 84°.

Find each of these angles. Give a reason for your answer.

a) $\hat{ABC}$ 42° half angle at centre.

b) $\hat{OAC}$ 48° isosceles triangle



$\frac{180-84}{2}$

$= \frac{96}{2} = 48°$

(2009-2)

14 Four points A, B, C and D lie on the circumference of the circle centre O.
The tangent TP touches the circle at C,

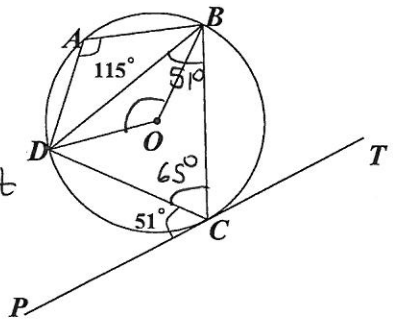
$D\hat{C}P = 51°$ and $D\hat{A}B = 115°$.

Find each of the following angles.

a) $D\hat{B}C$ 51° alternate segment

b) $B\hat{C}D$ 65° opposite ∠s cyclic quad

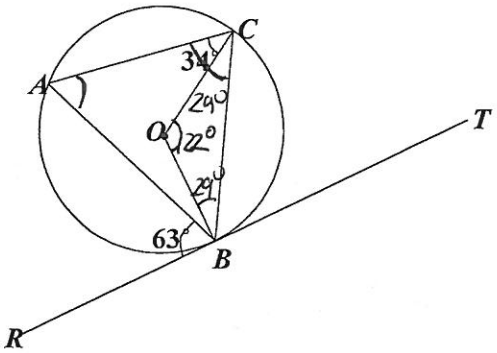
c) $B\hat{D}O$ 130° twice angle at circumference.



[3]

(2010-1)

15 The three points A, B and C lie on the circumference of a circle centre O.
The tangent RBT touches the circle at B, $A\hat{B}R = 63°$ and $A\hat{C}O = 34°$.



Find each of the following angles, giving reasons for your answers.

a) $O\hat{C}B$ $A\hat{C}B = 63°$ alternate segment [2]
$O\hat{C}B = 63 - 34 = 29°$

b) $B\hat{A}C$ [2]
$B\hat{O}C = 122°$ as isosceles triang'le
$B\hat{A}C = \frac{1}{2}$ angle at ~~circumfer.~~ centre
$= 61°$.