

Name: \_\_\_\_\_ ( ) Class: \_\_\_\_\_ Date: \_\_\_\_\_

### Lesson Worksheet 11.2 (II+)

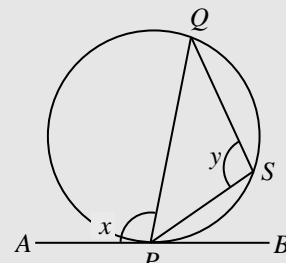
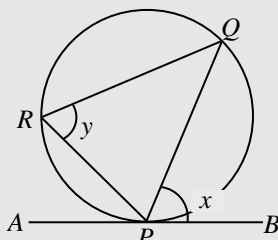
*Objective: To solve questions using the property '∠ in alt. segment' and test for tangents to a circle using the property 'converse of ∠ in alt. segment'.*

- (i) If  $AB$  is the tangent to the circle at  $P$ ,  
then  $x = y$ .

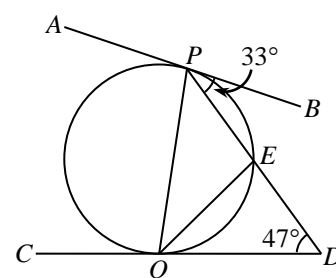
[Reference:  $\angle$  in alt. segment]

- (ii) If  $x = y$ ,  
then  $AB$  is the tangent to the circle at  $P$ .

[Reference: converse of  $\angle$  in alt. segment]

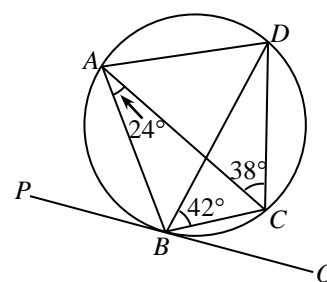


1. In the figure,  $AB$  and  $CD$  are tangents to the circle at  $P$  and  $Q$  respectively.  $PD$  cuts the circle at  $E$ .  $\angle BPD = 33^\circ$  and  $\angle PDQ = 47^\circ$ . Find  $\angle EQD$ .

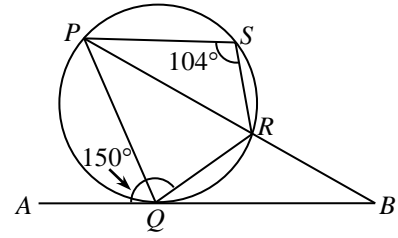


→ Exercise 11.2: 10

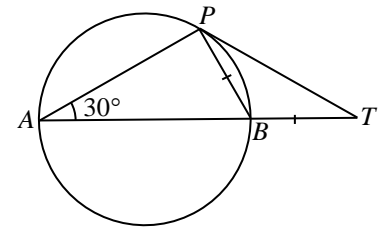
2. In the figure,  $ABCD$  is a cyclic quadrilateral.  $PQ$  is the tangent to the circle at  $B$ . Given that  $\angle BAC = 24^\circ$ ,  $\angle DBC = 42^\circ$  and  $\angle DCA = 38^\circ$ , find  $\angle ABP$ .



3. In the figure,  $PQRS$  is a cyclic quadrilateral.  $AB$  is the tangent to the circle at  $Q$ .  $PRB$  is a straight line. If  $\angle RQA = 150^\circ$  and  $\angle PSR = 104^\circ$ , find  $\angle PBA$ .



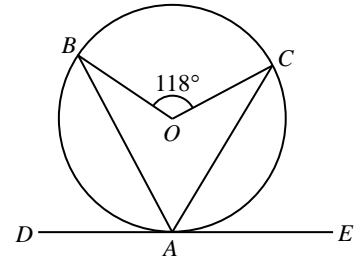
4. In the figure,  $AB$  is a diameter of the circle.  $P$  is a point on the circle such that  $\angle PAB = 30^\circ$ .  $AB$  is produced to  $T$  such that  $PB = TB$ . Determine whether  $TP$  is the tangent to the circle at  $P$ .



→Exercise 11.2: 24

HKDSE Corner

5. In the figure,  $O$  is the centre of the circle  $ABC$ .  $DE$  is the tangent to the circle at  $A$ . If  $AC$  is the angle bisector of  $\angle BAE$ , find  $\angle ACO$ .



Try More

6. In the figure,  $PQRS$  is a square which is inscribed inside a circle.  $RQ$  is extended to  $T$  such that  $QR = QT$ . Determine whether  $PT$  is the tangent to the circle at  $P$ .

