Solution **(a)** $\angle ACB = 90°$ ($\angle$ in a semicircle)

$\angle ABC + \angle BAC + \angle ACB = 180°$ ($\angle$ sum of $\triangle$)

$\angle ABC + \angle BAC + 90° = 180°$

$\therefore \quad \angle ABC + \angle BAC = 90°$

$\theta + \angle BAC = 90°$ (radius $\perp$ tangent)

$\therefore \quad \angle ABC + \angle BAC = \theta + \angle BAC$

$\angle ABC = \theta$

(b) In $\triangle ACT$ and $\triangle BAT$,

$\angle CAT = \angle ABT$ (proved)

$\angle ATC = \angle BTA$ (common)

$\therefore$ $\triangle ACT$ is similar to $\triangle BAT$. (Angle-Angle-Angle similarity)

(c) $\frac{AT}{CT} = \frac{BT}{AT}$ (corr. sides of similar $\triangle$s)

$\frac{AT}{4} = \frac{4+5}{AT}$

$AT^2 = 36$

$\therefore \quad AT = \sqrt{36}$

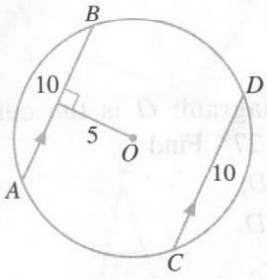
$= 6$ cm

Revision Practice 8

1. In the diagram, $AB \parallel CD$, O is the centre of the circle, $AB = CD = 10$ cm, O is 5 cm from the chord AB. Find

(a) the radius of the circle,

(b) the perpendicular distance between AB and CD.



2. In the diagram, $ABCD$ is a rectangle inscribed in a circle of radius 3 cm. If $AB = 5$ cm, find the area of the rectangle $ABCD$.