

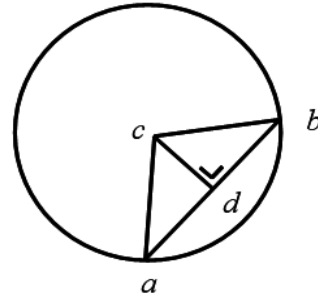
2004

Question 4

Q4. (a) A circle, centre c , has a chord $[ab]$ of length 8.

d is a point on $[ab]$ and cd is perpendicular to ab .
 $|cd| = 3$.

Find the length of a diameter of the circle.



(b) (i) Prove that a diagonal bisects the area of a parallelogram.

(ii) Show how to construct the circumcircle of a triangle.

All construction lines must be clearly shown.

(c) a, d, b, c are points on a circle, as shown.

o is the centre of the circle.

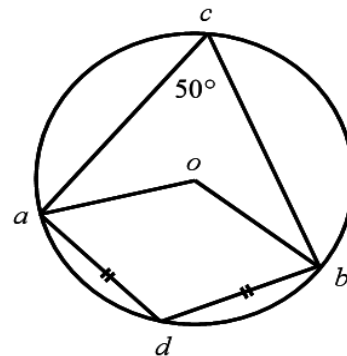
$|\angle acb| = 50^\circ$ and $|ad| = |db|$.

Find

(i) $|\angle aob|$

(ii) $|\angle abd|$

(iii) By joining a to b , or otherwise, find $|\angle oad|$

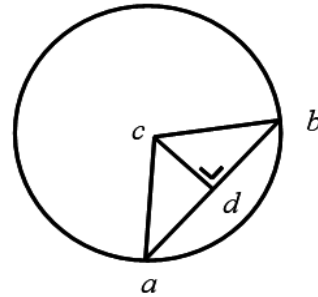


Solution

Q4. (a) A circle, centre c , has a chord $[ab]$ of length 8.

d is a point on $[ab]$ and cd is perpendicular to ab .
 $|cd| = 3$.

Find the length of a diameter of the circle.



$$r^2 = 3^2 + 4^2$$

$$r^2 = 9 + 16$$

$$r^2 = 25$$

Diameter is 10.

- (b) (i) Prove that a diagonal bisects the area of a parallelogram.
 (ii) Show how to construct the circumcircle of a triangle.

All construction lines must be clearly shown.

Done in the notes.

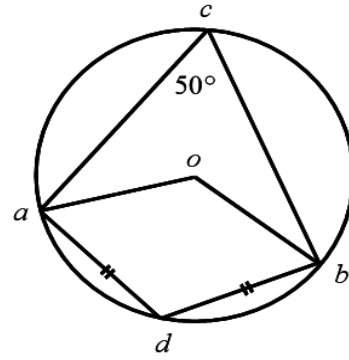
- (c) a, d, b, c are points on a circle, as shown.

o is the centre of the circle.

$$|\angle acb| = 50^\circ \text{ and } |ad| = |db|.$$

Find

- (i) $|\angle aob|$
- (ii) $|\angle abd|$
- (iii) By joining a to b, or otherwise, find $|\angle oad|$



(i) $|\angle aob| = 100^\circ$

(ii) $|\angle abd| = 130^\circ$

(iii) $|\angle oad| = 65^\circ$