Theorems Examples

Class 1

Theorem 1 Vertically opposite angles are equal.

Theorem 2 The three angles of a triangle sum to 180^o.

Theorem 3 The external angle of a triangle is equal to the sum of the interior opposite angles.

Theorem 4 Base angles of an isosceles triangle are equal in measure.

Theorem 5 The opposite sides of a parallelogram are equal in length.

Class 2

Theorem 6 A diagonal bisects the area of a parallelogram.

Theorem 7 The measure of the angle at the centre of a circle is twice the measure of an angle at the circumference standing on the same arc.

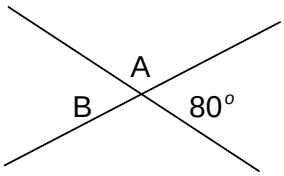
Theorem 8 A line through the centre of a circle perpendicular to a chord bisects the chord.

Theorem 9 If the angles of two triangle are, respectively, equal in measure, then the lengths of the corresponding sides are proportional.

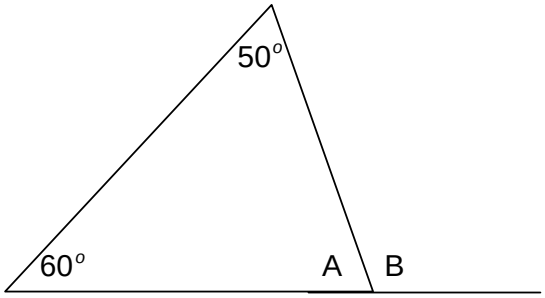
Theorem 10 In a right angled triangle square on the hypotenuse is equal to the sum of the squares on the other two sides.

Class 3

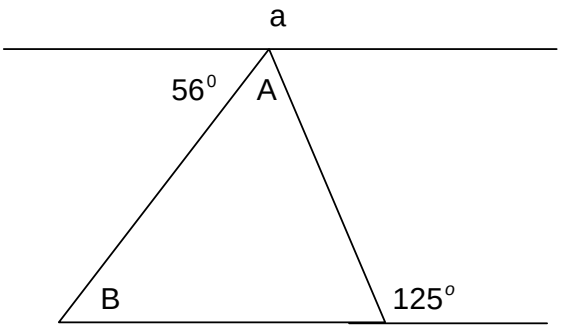
Example 1 Find the angles marked A and B.



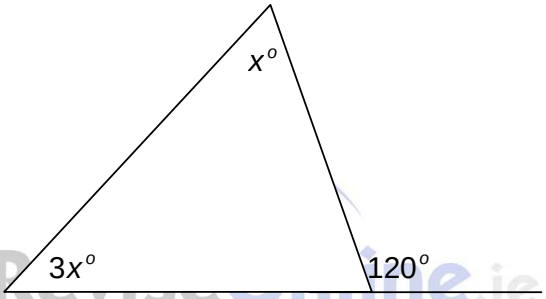
Example 2 Find the angles marked A and B.



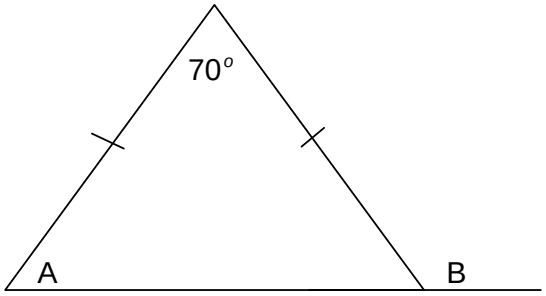
Example 3 abc is a triangle as shown and L is a line parallel to bc. Find the angles marked A and B.



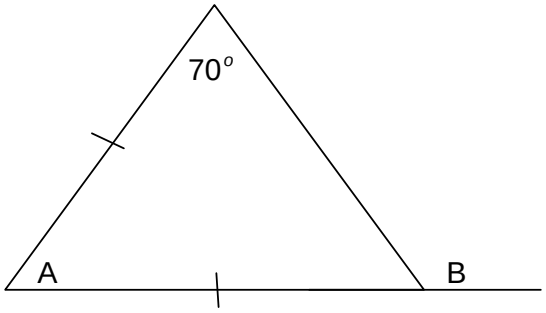
Example 4 Find the value of x.



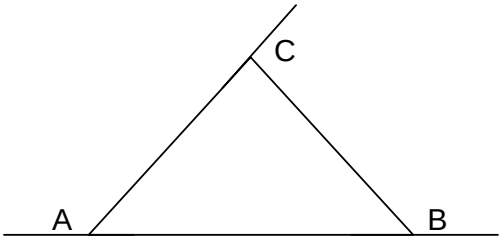
Example 5 Find the angles marked A and B.



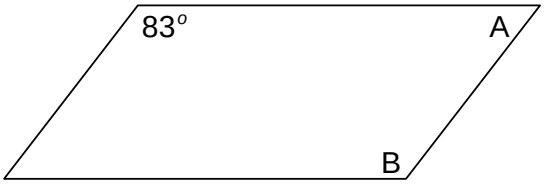
Example 6 Find the angles marked A and B.



Example 7 Prove that $A+B+C=360^o$

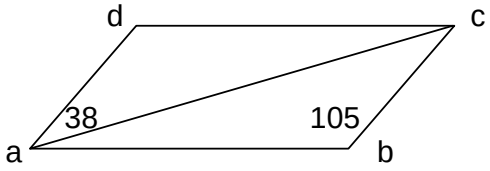


Example 8 Find the angles A and B.



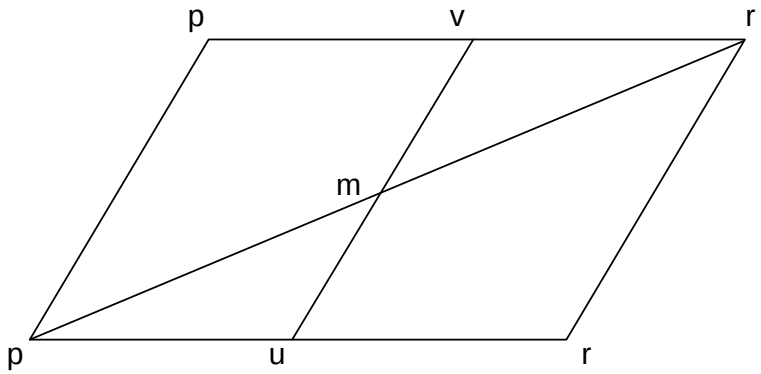
Example 9 In the parallelogram abcd, $|\angle abc| = 105^o$ and $|\angle dac| = 38^o$.

Find $|\angle bac|$



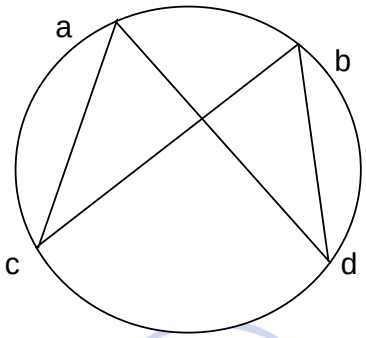
Example 10 In the parallelogram pqrs, m is the midpoint of [qr]. u and v are points on the sides [qs] and [pr] such that [uv] intersects [qr] at m as shown below.

Prove that |qu| = |vr|

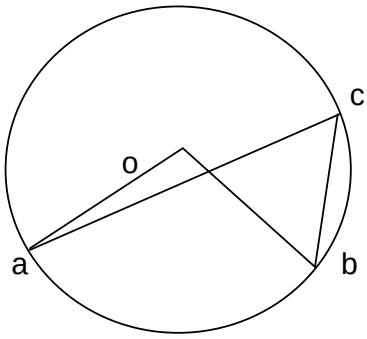


Class 4

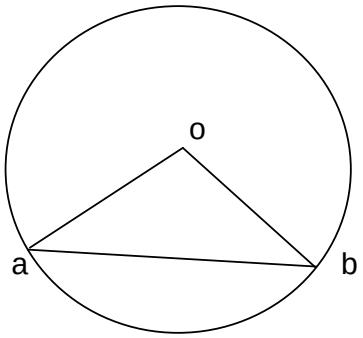
Example 1 If $|\angle cad| = 70^o$ find $|\angle cbd|$



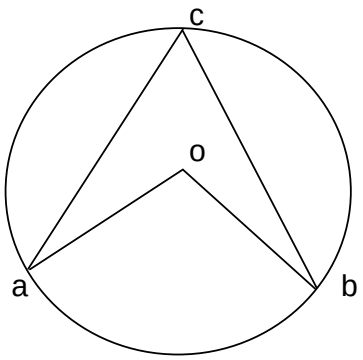
Example 2 If $|\angle aob| = 70^o$, where o is the centre of the circle find $|\angle acb|$



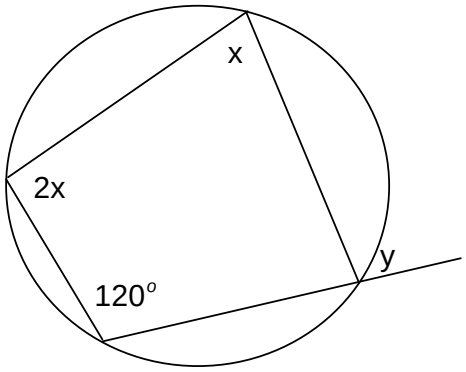
Example 3 If $|\angle aob| = 70^o$, where o is the centre of the circle find $|\angle abo|$



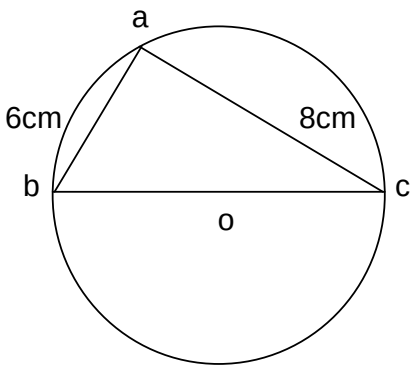
Example 4 If $|\angle cao| = 25^o$ and $|\angle aob| = 98^o$, where o is the centre of the circle find $|\angle cbo|$



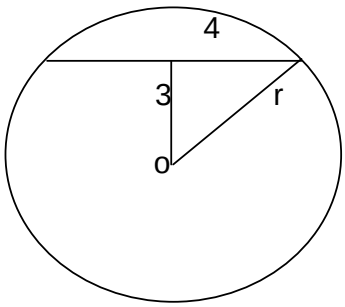
Example 5 A circle has centre o as shown. Find x and y.



Example 6 A circle K has centre o. The points a, b, c are on the circle. If |ab| = 6cm and |ac| = 8cm find the length of the radius.



Example 7 C is a circle centre o, which has a chord of length 8 units at a distance of 3 units from its centre. Find the radius of C.



Example 8 [pq] is parallel to [bc].

If |aq| = 4cm, |pc| = 6cm and |ab| = 15cm find

(i) |pb|
(ii) Area Δ apq : Area Δ abc