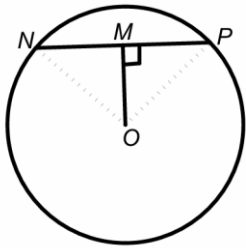


Red = You see something in a diagram and make a statement about it.

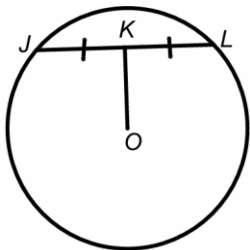
Blue = the evidence for that statement.

The chord is bisected **because** the line from centre is perpendicular to a chord.



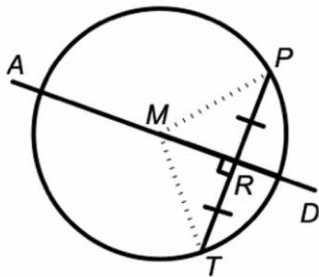
Shorthand = line from centre perp. to chord.

A line starting at the centre and ending at a chord is at 90° **because** the line goes from the centre directly to the midpoint of the chord.



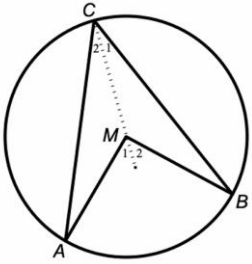
Shorthand = line from centre to mid-pt. chord.

A line passes through the centre of the circle **because** that line is a perpendicular bisector of the chord.



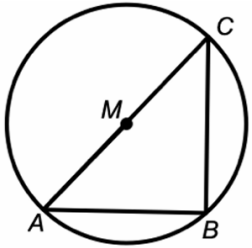
Shorthand = perp. bisector of chord.

The angle is x degrees because the angle at the centre is always $2x$ the angle at the circumference.



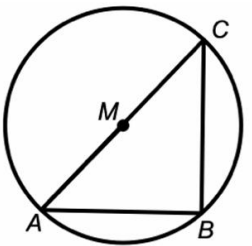
Shorthand = \angle at the centre = $2x$ \angle at circum.

The angle is 90° because the angle is in a semicircle.



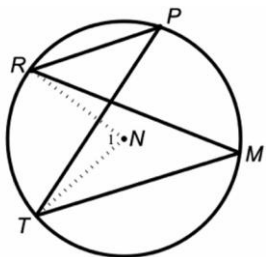
Shorthand = \angle in a semicircle.

The chord is a diameter because the chord subtends to 90° .



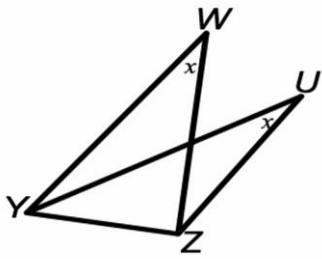
Shorthand = chord subtends 90° .

This angle is the same as that angle because the angles are in the same segment.



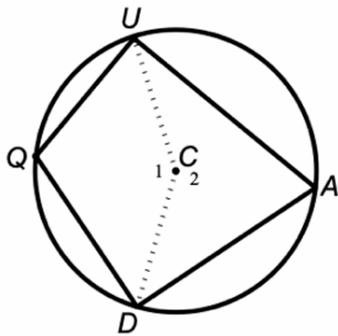
Shorthand = \angle 's in same seg.

This quadrilateral is actually a cyclic one **because** the line subtends equal angles.



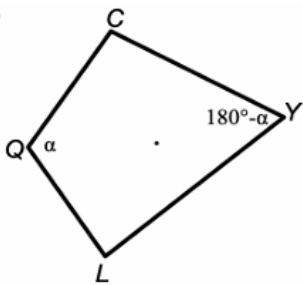
Shorthand = line subt. = \angle 's.

This angle is ' $180^\circ - x$ ' **because** opposite angles in a cyclic quadrilateral are supplementary.



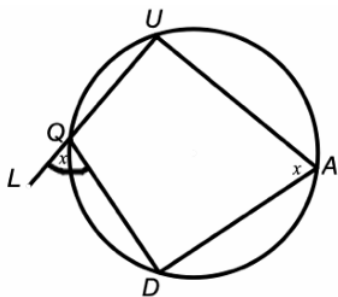
Shorthand = opp. \angle 's cyc. quad.

This quadrilateral is actually a cyclic one **because** we can see that the opposite angles in the quadrilateral are supplementary.



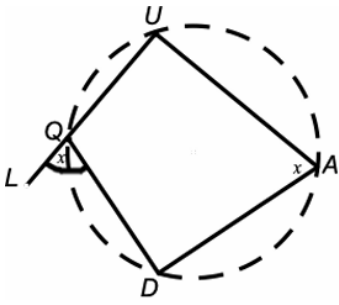
Shorthand = opp \angle 's in quad. supp.

This angle is x° **because** the exterior angle of a cyclic quad is equal to the interior opposite angle.



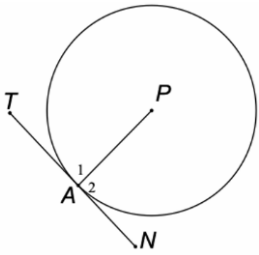
Shorthand = ext. \angle cyc. quad.

This quadrilateral is a cyclic one **because** the exterior angle is equal to the interior opposite angle.



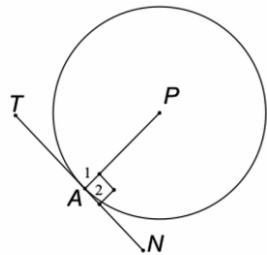
Shorthand = ext. \angle = int. opp. \angle .

This angle is 90° **because** a tangent is always perpendicular to the radius.



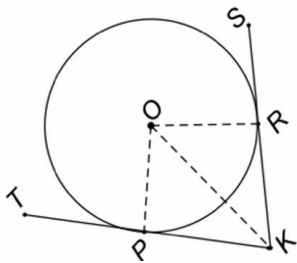
Shorthand = tan perp radius.

This line segment is a tangent **because** it is perpendicular to the radius.



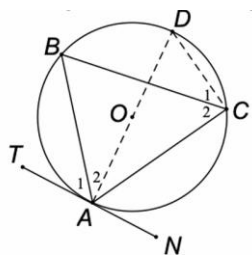
Shorthand = line seg perp to radius.

The two tangents are equal in length **because** the two tangents start from the same point outside the circle.



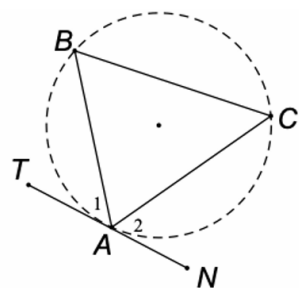
Shorthand = tan from same pt.

This angle is x° because the tan-chord theorem shows us this.



Shorthand = tan-chord th.

This line segment is a tangent because the angle between the line and the chord is equal to the angle the chord subtends.



Shorthand = \angle betw. line and chord.
