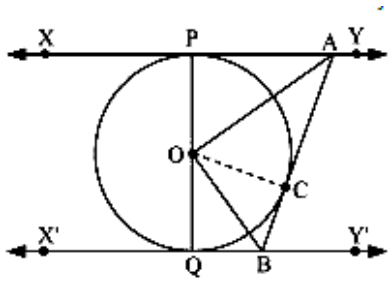
**Answer on Question #48835 – Math – Geometry**

**Question:**

The angles subtended by the intercept of a tangent between two parallel tangents to the circle is …

**Answer:**

The angles subtended by the intercept of a tangent between two parallel tangents to the circle is **90 º**.




Given: XY and X'Y' at are two parallel tangents to the circle with centre O and AB is the tangent at the point C, which intersects XY at A and X'Y' at B.
To prove: ∠AOB=90°.
Construction: Join OC.
Proof:
In ΔOPA and ΔOCA, we have
OP = OC (Radii of the same circle)
AP = AC (Tangents from point A)
AO = AO (Common side)
ΔOPA ≅ΔOCA (SSS congruence criterion)
Therefore, ∠POA = ∠COA … (1) (C.P.C.T)
Similarly, ΔOQB ≅ΔOCB
∠QOB = ∠COB … (2)
POQ is a diameter of the circle. Hence, it is a straight line.
Therefore, ∠POA + ∠COA + ∠COB + ∠QOB = 180°
From equations (1) and (2), it can be observed that
2∠COA + 2 ∠COB = 180°
∴∠COA + ∠COB = 90°
∴∠AOB=90°