what are the 3 key theorems about a tangent to a circle?

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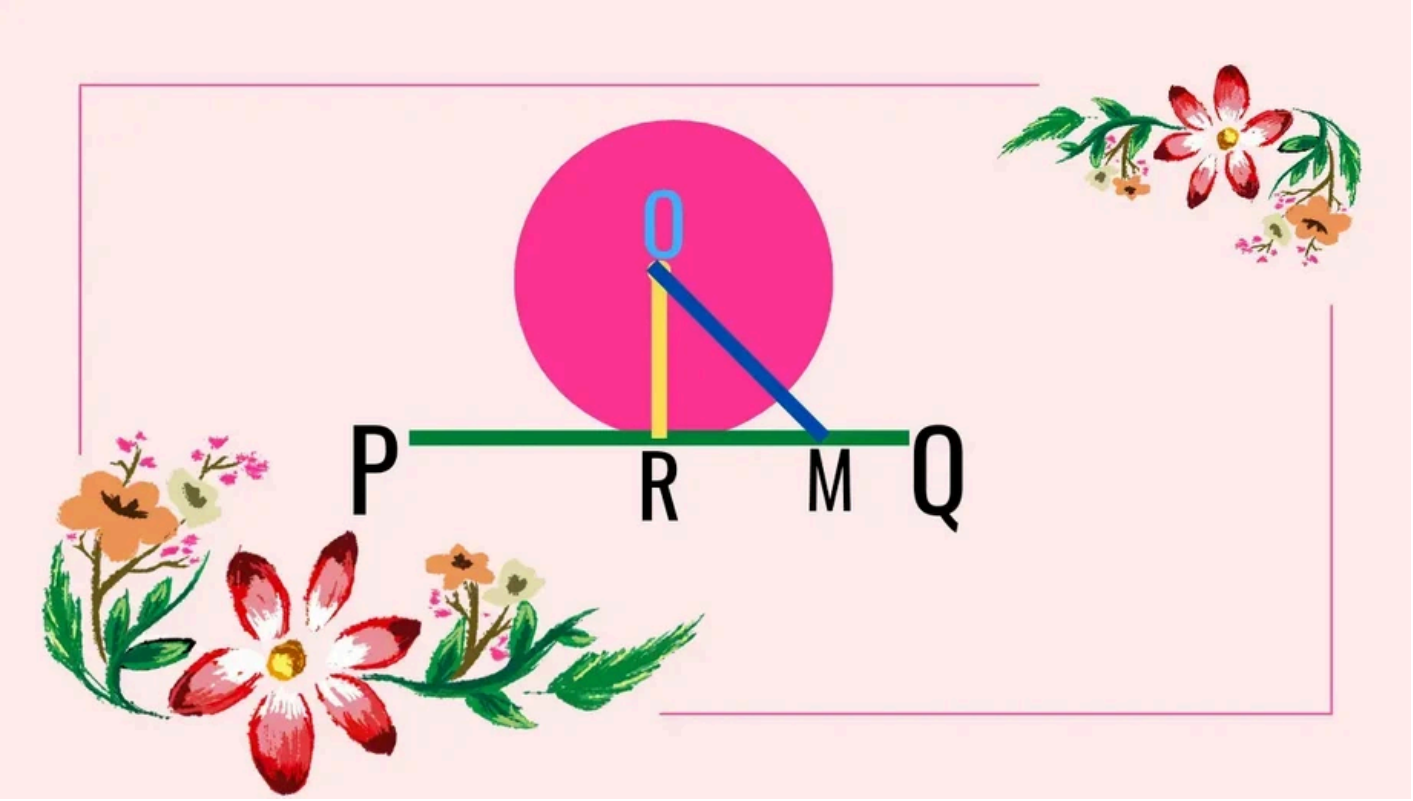

what are the 3 key theorems about a tangent to a circle?

Today in this article I will explain a very important topics,which is circle and its various theorems.

*Prove that radius of a circle is perpendicular on the tangent at its point of contact.

Answer:-

Let PQ is a tangent on a circle with cener 'O' at a point 'R' and OR is the radius of the circle.

To prove:- OR⊥PQ

Construction:- 'M' is an another point taken on 'PQ' outside the circle

Proof:-
If M would inside the circle then PQ would be a secant not a tangent, but in this theorem PQ must be a tangent, So clearly we can see that the distance of 'M' from the center of the circle 'O' is greater than the distance of point 'R' from the center 'O'.

i.e; OM> OR, and this is universal true for any pont lying outside the circle and which is on PQ. So 'OR' is the least smaller distance from center 'O'
∵ We know that line drawn from a fixed point on another line the shortest vertical line is the the perpendicular.
So, OR⊥ PQ Proved.

*Prove that the length of the tangents drawn from an external points on a circle are equal and they also produces equal angles at the center.

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