

$$\begin{aligned}
 27 \text{ Area of shaded region} &= \text{Area of } NICE - (\text{Area of } RSBT + \text{Area of } ABCD) \\
 &= NI^2 - (RS^2 + BA^2) \\
 &= 25 - x^2 - 9 \\
 &= 16 - x^2 \text{ cm}^2.
 \end{aligned}$$

4th exercise:

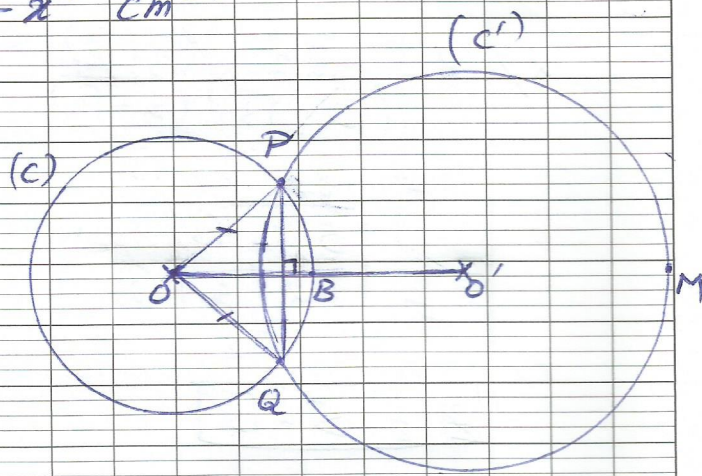
1) Drawn.

2a) P & Q are pts on (c')
of diameter [OM] (given)

$$\text{So, } \hat{OPM} = \hat{OQM} = 90^\circ$$

(inscribed angle facing diameter.)

Thus, \angle s \hat{OPM} & \hat{OQM} are right at P & Q. respectively.



b) $\hat{OPM} = \hat{OQM} = 90^\circ$ (proved)

[OP] and [OQ] are radii of (c) (given)

Thus, [MP] & [MQ] are tangents to (c) at P & Q resp. (tangent theorem: angle formed between tangent & radius is right).

3) M is the pt of intersection of the two tangents [MP] & [MQ] to (c) of center O, at P & Q resp. (proved)

Thus, [OO'] is the perpendicular bisector of [PQ] (tangent theorem: st. line joining pt from which tangents are drawn & center of circle is perp. bisector of segment joining pts of tangencies).

4a) In $\triangle OPQ$ we have.

$$OP = OQ \text{ (radii of (c))}$$

Thus, $\triangle OPQ$ is isosceles at O (having two equal sides).