3a) * since $OC = OB = 3cm$ (radii of (S))

$\frac{1}{4}$ then OCB is isosceles at O (for having 2 equal sides)

• $(OR) // (AC)$ (given)

$(AC) \perp (CB)$ (proved)

$\frac{1}{2}$ thus $(OR) \perp (BC)$ since if two straight lines are parallel then every straight line perpendicular to one is also perpendicular to the other.

thus $[OR]$ is the height relative to the base $[BC]$ in the isosceles triangle OBC thus $[OR)$ is the bisector of the main angle (Rule)

so $[OR]$ is the bisector of $\hat{COB}$. $\frac{1}{4}$

b) In the two triangles COD and OBD we have

S. $CO = OB$ (radii of (S))

A. $\hat{COD} = \hat{DOB}$ (O, R & D are collinear & $[OR)$ is the bisector of $\hat{COB}$)

S. $[OD]$ common side

so they are congruent by SAS (rule) $3/4$

c) $\hat{DBO} = \hat{OCD} = 90°$ (homologous elements) $\frac{1}{4}$ & $[OB]$ is a radius of the circle (S) thus $(DB) \perp (OB)$ at B so (BD) is a tangent to (S) at B. radius $\frac{1}{4}$ $\frac{1}{4}$

d) OCD and OBD are two right triangles at C and B $\frac{1}{4}$ respectively having a common hypotenuse $[OD]$ (proved) $\frac{1}{4}$ so they are inscribed in a circle whose diameter is $[OD]$ thus O, D, B and C belong to the same circle whose diameter is $[OD]$ $\frac{1}{2}$