Under CSR Support by ipca | Foundation

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CLASS – 10

MATHEMATICS

CH – 10 : CIRCLES

CBSE Board

Most Important Questions – 2

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6. In Fig. ABC is a right triangle right-angled at B such that BC = 6 cm and AB = 8 cm. Find the radius of its incircle.

$AC = AR + CR$

$10 = 8 - r + 6 - r$

$10 = 14 - 2r$

$2r = 14 - 10$

$2r = 4$

$r = 2\text{cm}$

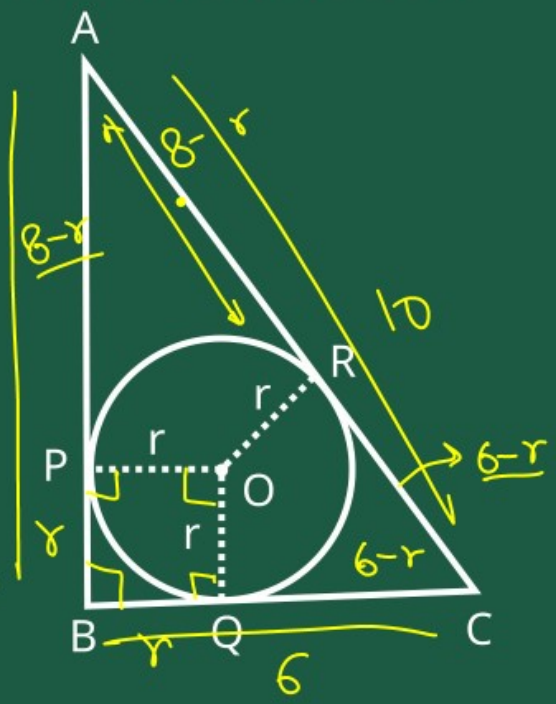
$AB^2 + BC^2 = AC^2$

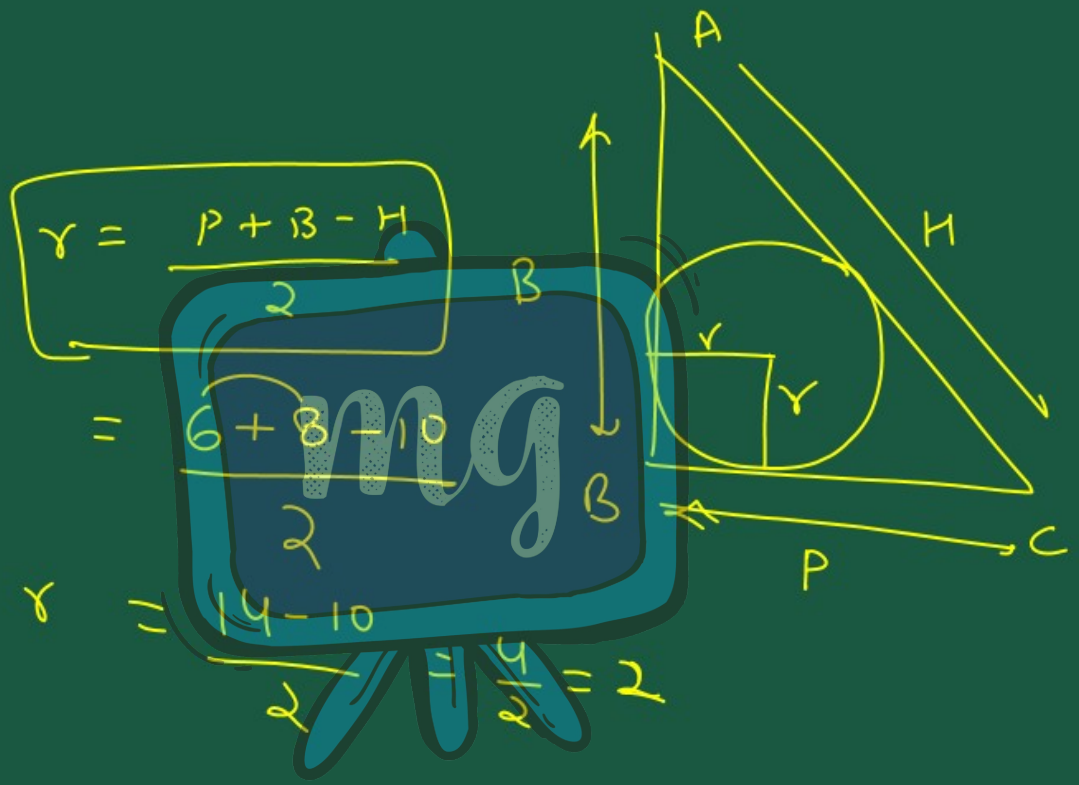
$8^2 + 6^2 = AC^2$

$64 + 36 = AC^2$

$100 = AC^2$

$10 = AC$





7. In Fig. the tangent at a point C of a circle and a diameter AB when extended intersect at P. If ∠PCA = 110°, find ∠CBA.

$\angle ACB = 90^\circ$ {Angle of Semicircle}

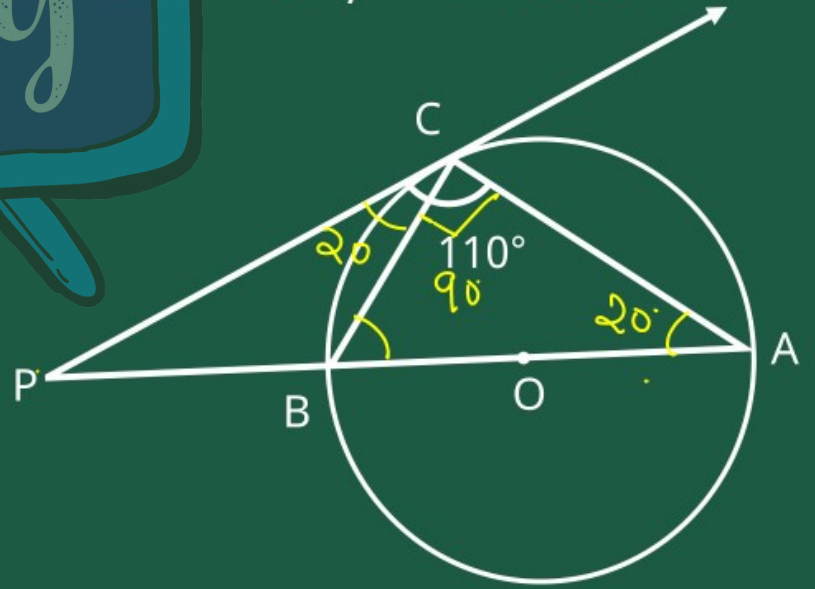
$\angle PCA - \angle BCA = \angle PCB$

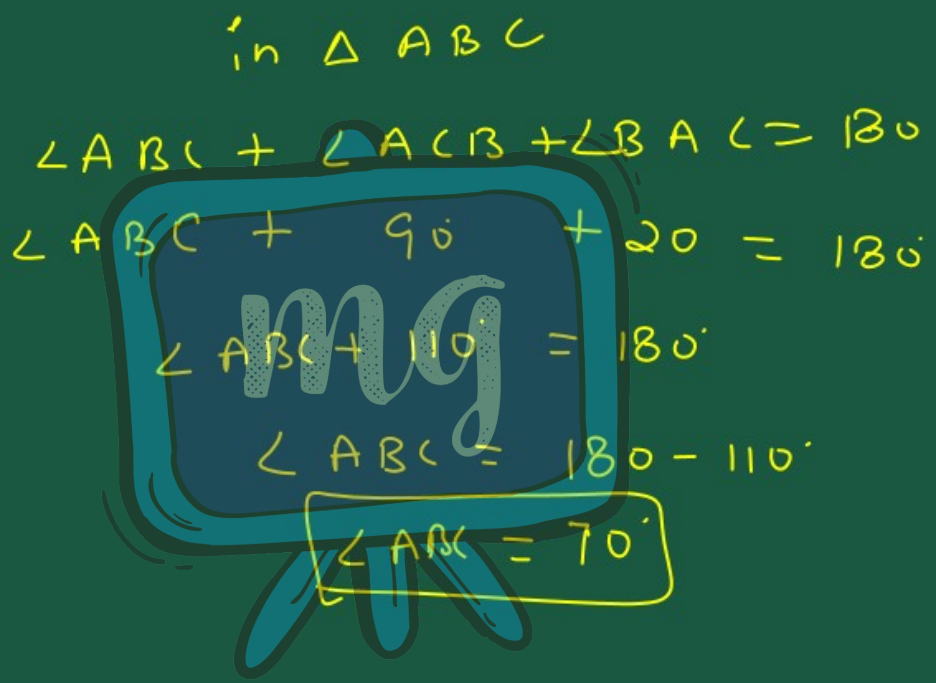
$110 - 90 = \angle PCB$

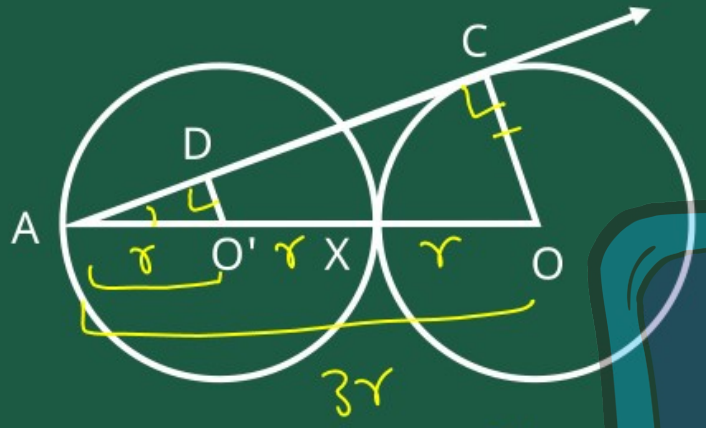
$20^\circ = \angle PCB$

$\angle PCB = \angle CAB$

$20^\circ = \angle CAB$







8. In Fig. equal circles with centres O and O' touch each other at X. OO' produced to meet a circle with centre O', at A. AC is a tangent to the circle whose centre is O. O'D is perpendicular to AC. Find the value of $\frac{DO'}{CO}$

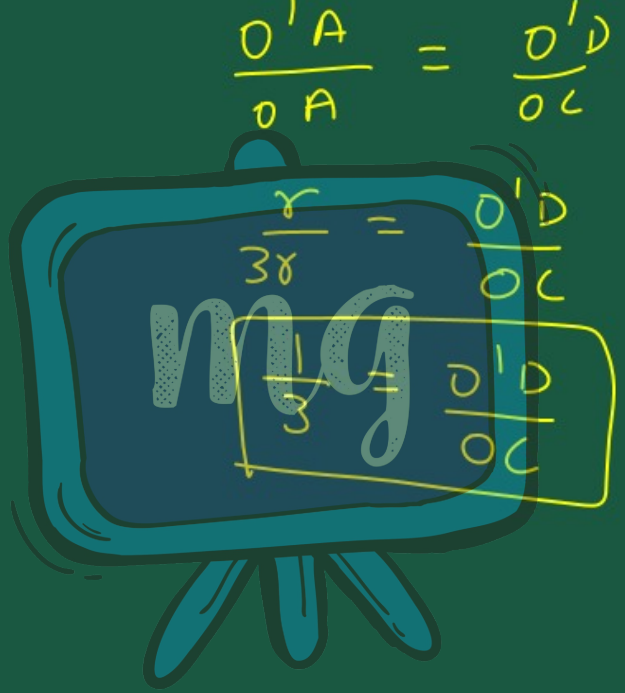
Solu.- $\triangle OAC$ & $\triangle O'AD$

$\angle A = \angle A$ {Common}

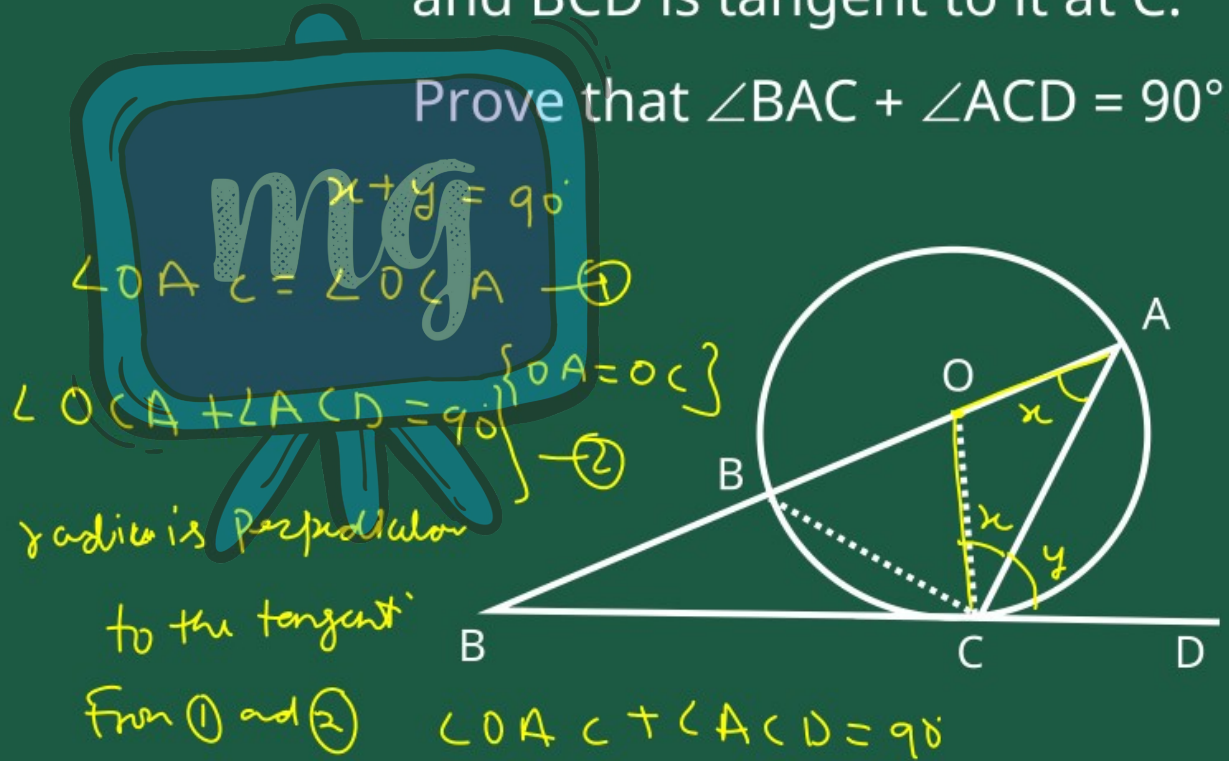
$\angle O'DA = \angle OCA = 90°$

By AA similarity Rule $\triangle O'AD \sim \triangle OAC$

$\frac{O'A}{OA} = \frac{O'D}{OC}$



9. In Fig. O is the centre of the circle and BCD is tangent to it at C. Prove that $\angle BAC + \angle ACD = 90°$.



10. From a point P two tangents PA and PB are drawn to a circle with centre at O. If OP = 2r, show that ΔPAB is equilateral.

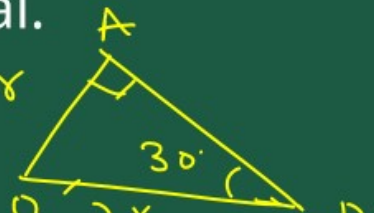
In ΔAPB

$AP = BP$ {Tangents}

$\angle PAB = \angle PBA$

$60 = \angle PBA$.

In ΔOAP



$\sin\theta = \frac{P}{H}$

$\sin\theta = \frac{OA}{OP} = \frac{r}{2r} = \frac{1}{2}$

$\sin\theta = \sin 30°$

$\therefore \theta = 30°$

In $\triangle PAB$

$\angle PAB + \angle PBA + \angle APB = 180^\circ$

$\angle PAB + \angle PAB + \angle APB = 180$

$2\angle PAB + 60^\circ = 180^\circ$

$2\angle PAB = 180 - 60 = 120^\circ$

$\angle PAB = 60^\circ$

Hence $\triangle PAB$ is an equilateral $\triangle$.