



MATHS

BOOKS - R G PUBLICATION

CIRCLES

Example

1. The length of a tangent drawn to a circle from a point which is a distance of 13 cm from

the centre of the circle is 12 cm. Find the radius of the circle.



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2. If the points of contact of the tangents drawn from an external point P to a circle with centre O be A and B , then show that $PAOB$ is a cyclic quadrilateral.



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3. The line joining the points of contact of two parallel tangents to a circle passes through the centre. Prove it.



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4. PA and PB are two tangents drawn from an external point P at the points A and B on a circle with centre O. If another tangent to the circle intersects PA and PB at L and M respectively, show that $LM = AL + BM$.





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5. If a circle touches all the sides of the quadrilateral ABCD, then show that $AB+CD=BC+DA$.



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6. PA and PB are two tangents drawn from an external point P at the points A and B on a circle C(O,r). Prove that $OP \perp AB$



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7. If the incircle of the triangle ABC touches the sides AB, BC, CA at P, Q and R respectively, then show that:

$$AP + BQ + CR = \frac{1}{2} \text{ perimeter of triangle ABC}$$


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8. ABCD is a quadrilateral such that $\angle D = 90^\circ$. The circle C(0, r) touches the sides AB, BC, CD

and DA at P,Q,R and S respectively.If

BC=38cm.CD=25cm and BP=27cm.then find r.



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9. If two parallel tangents drawn to a circle with centre O are intersected at the points D and E respectively by a tangent drawn at another point on the circle,then show that

$$\angle DOE = 90^\circ$$



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Exercise

1. How many tangents can a circle have?



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2. A tangents to a circle intersects it in ___points



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3. A line intersecting a circle in two points is called a _____



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4. A circle can have _____ parallel tangents at the most.



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5. The common points of a tangent to a circle and the circle is called_____



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6. A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ=12 cm.Length PQ is

a):12cm b)13cm c)8.5cm d) $\sqrt{119}cm$

A. 12cm

B. 13cm

C. 8.5cm

D. $\sqrt{119}cm$

Answer:



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7. Draw a circle and two line parallel to a given line such that one is a tangent and the other, a secant to the circle.



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8. From a point Q, the length of the tangent to a circle is 24 cm and the distance of Q from the centre is 25 cm. The radius of the circle is
a) 7 cm b) 12 cm c) 15 cm d) 24.5 cm

A. 7 cm

B. 12 cm

C. 15 cm

D. 24.5 cm

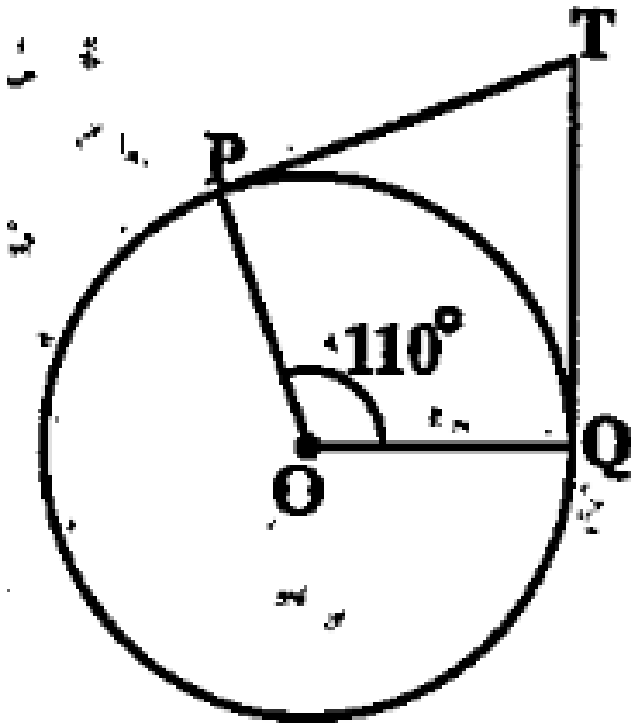
Answer:



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9. In Fig.10.11,if TP and TQ are the tangent to a circle with centre O so that $\angle POQ = 110^\circ$ then $\angle PTQ$ is equal to

a) 60° b) 70° c) 80° d) 90°



A. 60°

B. 70°

C. 80°

D. 90°

Answer:



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10. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at angle of 80° , then $\angle POA$ is equal to

A. 50°

B. 60°

C. 70°

D. 80°

Answer:



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11. Prove that the tangents drawn at the ends of a diameter of a circle are parallel.



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12. Prove that the perpendicular at the points of contact to the tangents to a circle passes through the centre.



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13. The length of a tangent from a point A at distance 5 cm from the centre of the circle is 4 cm. Find the radius of the circle.



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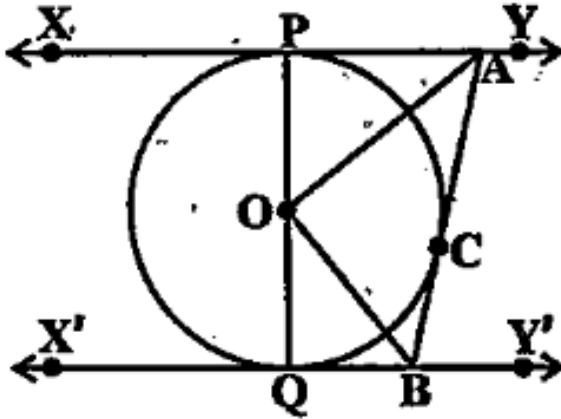
14. Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle.



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15. In Fig.10.13, XY and $X'Y'$ are two parallel tangents to a circle with centre O and another tangent AB with point of contact C intersecting XY at A and $X'Y'$ at B . Prove that

$$\angle AOB = 90^\circ.$$



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16. Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle

subtended by the line-segment joining the points of contact at the centre.



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17. Prove that parallelogram circumscribing a circle is a rhombus.



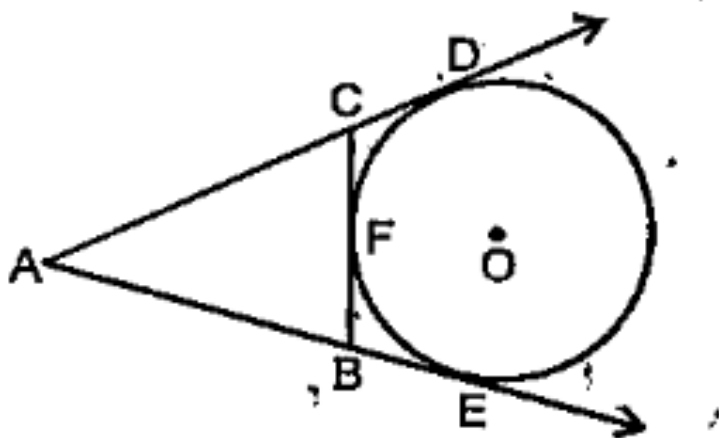
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18. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary

angles at the center of the circle.

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19. In figure ,if AD,AE, and BC are tangents to the Circle at D,E and F respectively then



A. $AD=AB+BC+CA$

B. $2AD=AB+BC+CA$

C. $3AD=AB+BC+CA$

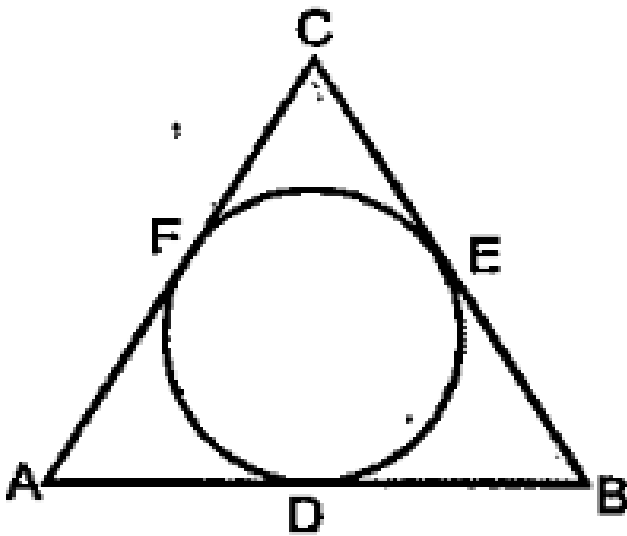
D. $4AD=AB+BC+CA$

Answer:



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20. In the adjacent figure if $AB=12$ cm, $BC=8$ cm and $AC=10$ cm then the value of AD is



A. 4cm

B. 5cm

C. 6cm

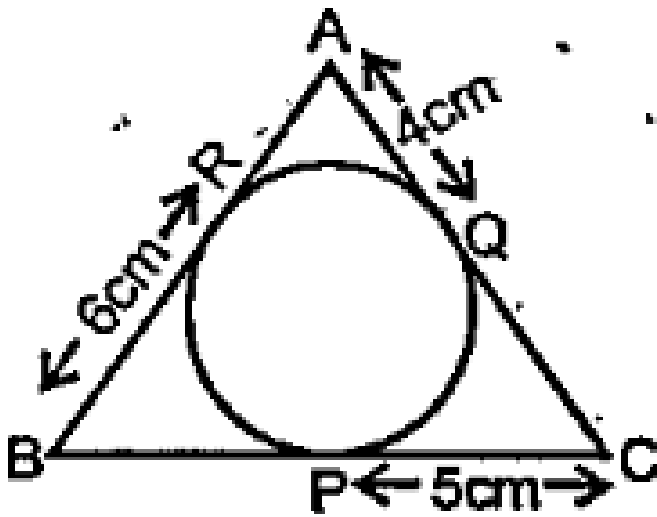
D. 7cm

Answer:



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21. In figure the perimeter of $\triangle ABC$ is



A. 15cm

B. 30cm

C. 45cm

D. 60cm

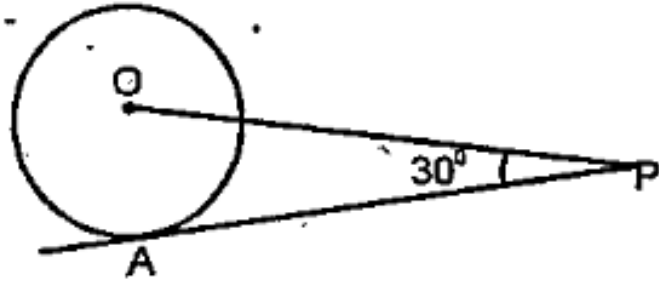
Answer:



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22. In figure AP is a tangent to the circle with centre O such that $OP=4\text{cm}$ and

$\angle OPA = 30^\circ$ then the value of AP is



A. 2cm

B. $2\sqrt{2}cm$

C. $2\sqrt{3}cm$

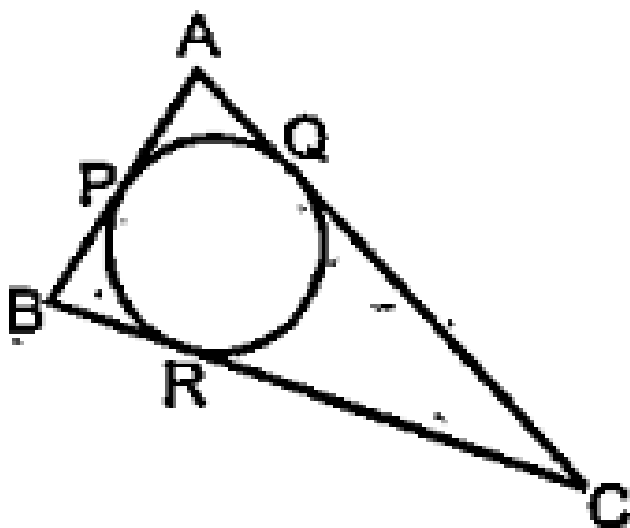
D. $3\sqrt{2}cm$

Answer:



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23. In figure if $AP=PB$ then



A. $AB=BC$

B. $AC=BC$

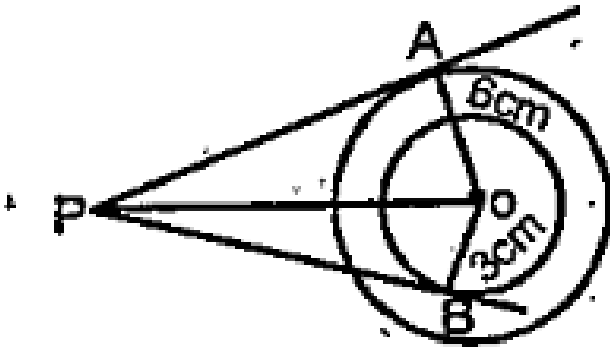
C. $AQ=QC$

D. $AC=AB$

Answer:

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24. In figure if $AP=10\text{cm}$ then the value of BP will be



A. $\sqrt{91}cm$

B. $\sqrt{127}cm$

C. $\sqrt{119}cm$

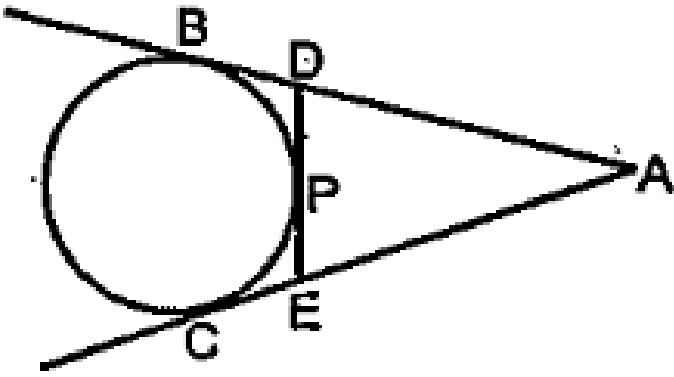
D. $\sqrt{109}cm$

Answer:



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25. In figure if $AB=8cm$ and $PE=3cm$ then the value of AE will be



A. 7cm

B. 3cm

C. 5cm

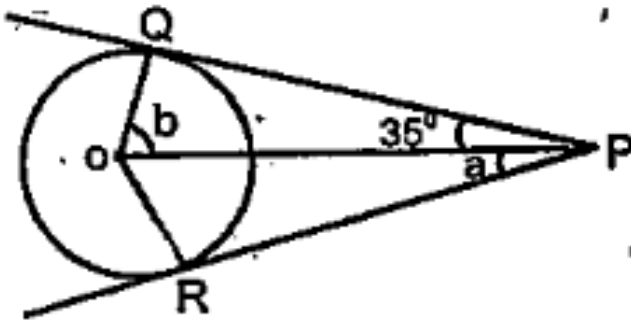
D. 11cm

Answer:



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26. In figure PQ and PR are tangents drawn from P to a circle with centre O. If $\angle OPQ = 35^\circ$ then



A. $a = 30^\circ, b = 60^\circ$

B. $a = 45^\circ, b = 45^\circ$

C. $a = 35^\circ, b = 55^\circ$

D. $a = 40^\circ$, $b = 50^\circ$

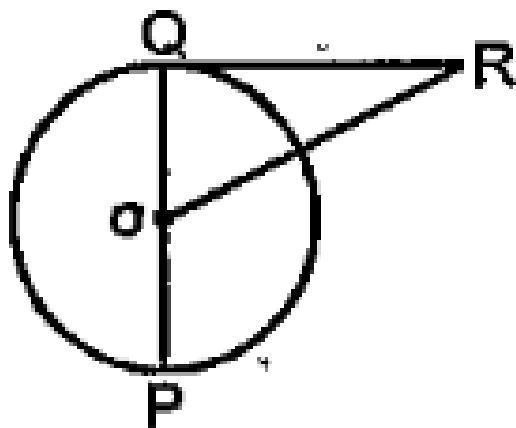
Answer:



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27. In figure RQ is a tangent to the circle with centre O. If $PQ=6\text{cm}$ and $QR=4\text{cm}$ then the value

of OR is



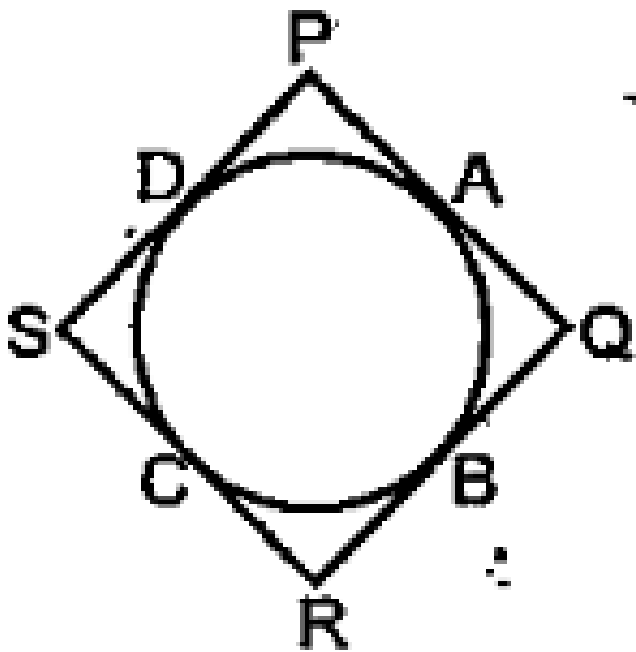
- A. 3cm
- B. 2.5cm
- C. 5cm
- D. 8cm

Answer:





28. In figure if Quadrilateral PQRS circumscribes a circle then $PD+QB=$



A. PR

B. PQ

C. QR

D. PS

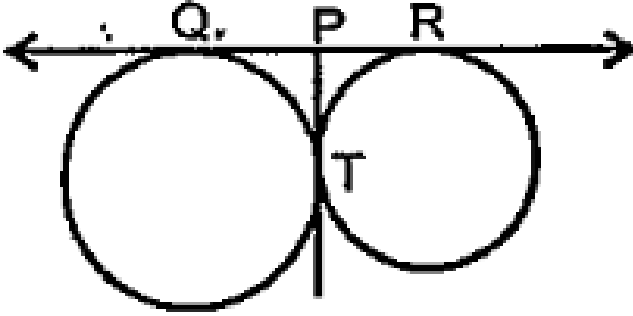
Answer:



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29. In figure two equal circles touch each other

at T if $QP = 4.5$ cm then $QR =$



A. 9cm

B. 18cm

C. 15cm

D. 13.5cm

Answer:



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30. A line which touches the circle is known as



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31. _____ tangent can be drawn through a point on a circle.



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32. Tangents at the end points of a diameter are ____



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33. Secant intersects a circle at ___ distinct points.



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34. Circle divide a plane in 3 parts ____,____
and____



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