Name

Circles - Analytical Geometry - Practice

1 Find the equation of the circle with centre C through P.

$C(7,-3)$

$P(9,1)$

A $(x+7)^2+(y-3)^2=20$

B $(x-7)^2+(y+3)^2=6$

C $(x-7)^2+(y+3)^2=80$

D $(x-7)^2+(y+3)^2=20$

2 Find the equation of the circle with diameter AB.

$A(-1,-1)$

$B(11,1)$

A $(x+5)^2+y^2=37$

B $(x-5)^2+y^2=148$

C $(x-5)^2+y^2=37$

D $(x+1)^2+(y+1)^2=37$

3 Find $\angle APB$. The two lines from P are tangent.

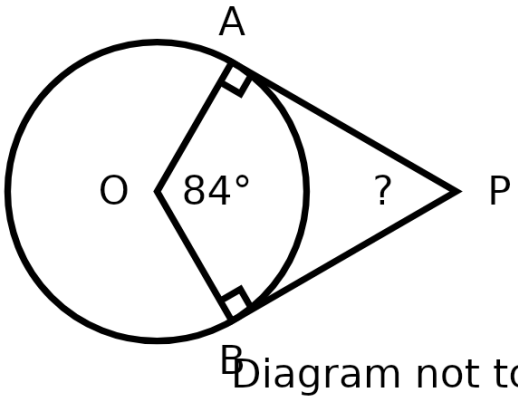

Diagram not to scale

A $138°$

B $96°$

C $84°$

D $48°$

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4 Find $\angle AOB$. The two lines from P are tangent.

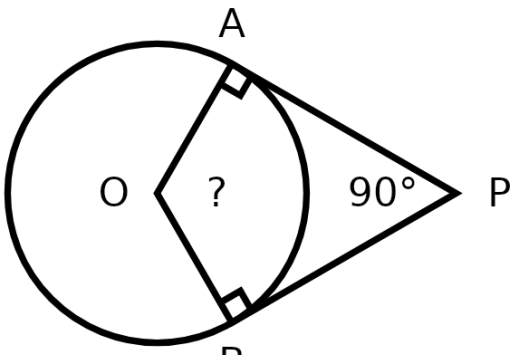

Diagram not to scale

A

$45°$

B

$90°$

C

$135°$

5 Is line TP tangent to the circle at T? Use the lengths shown.

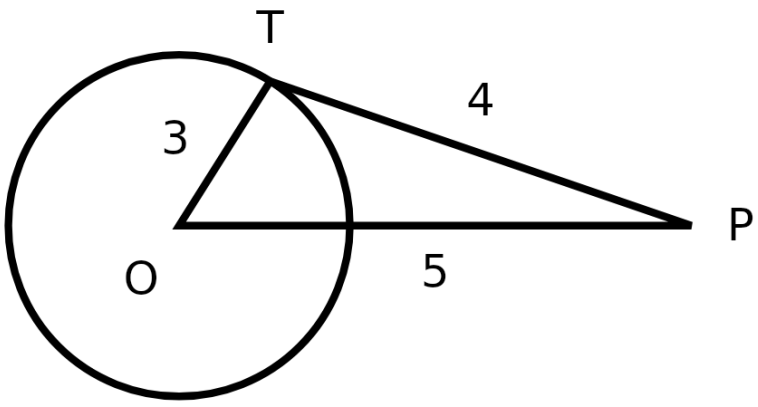

Diagram not to scale

A

Yes

B

No

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6 Find the slope of the tangent at P.

$$x^2+y^2=80$$
$$P(8,-4)$$

A -2	B 2
C 0	D $-\frac{1}{2}$

7 Find the slope of the tangent at P.

$$(x-6)^2+y^2=80$$
$$P(10,-8)$$

A $-\frac{1}{2}$	B $\frac{1}{2}$
C 0	D -2

8 Find the equation of the tangent at P.

$$x^2+y^2=72$$
$$P(6,-6)$$

A $y=x-12$

B $y=x$

C $y=-x$

D $y=x+12$

9 Find the equation of the tangent at P.

$$(x-5)^2+y^2=80$$
$$P(9,-8)$$

A $y=\frac{1}{2}x+\frac{15}{2}$

B $y=-2x+10$

C $y=\frac{1}{2}x-\frac{25}{2}$

D $y=\frac{1}{2}x-\frac{5}{2}$

10 Find the larger value of k for which the line is tangent to the circle.

$$(x-3)^2+(y+2)^2=160$$
$$y=-3x+k$$

A	$k=11$
B	$k=87$
C	$k=47$
D	$k=-33$

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11 Find the equation of the tangent at P.

$$(x-4)^2+(y-2)^2=64$$
$$P(12,2)$$

A
$x=4$

B
$x=12$

C
$y=2$

D
$x=-4$

12 Line PT is tangent at T. Find OP in centimetres to the nearest tenth.

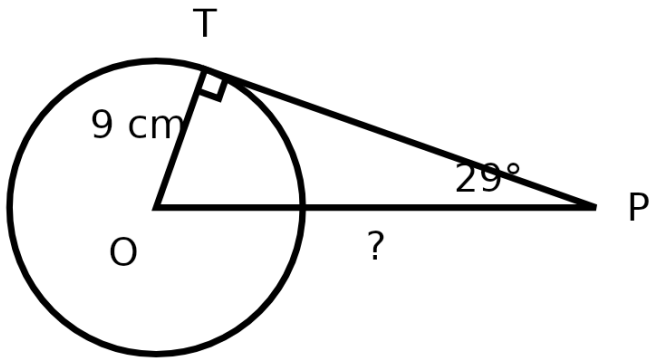

Diagram not to scale

A
$16.2\,\text{cm}$

B
$10.3\,\text{cm}$

C
$4.4\,\text{cm}$

D
$18.6\,\text{cm}$