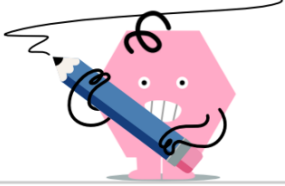
Name



# Circles - Analytical Geometry - Intro

**1** Where is $P$ relative to the circle?

$$x^2+y^2=100$$
$$P(5,8)$$

A Outside the circle

B Inside the circle

C On the circumference

**2** Where is $P$ relative to the circle?

$$(x-2)^2+y^2=9$$
$$P(2,4)$$

A Outside the circle

B On the circumference

C Inside the circle

**3** Where is $P$ relative to the circle?

$$(x+3)^2+(y+1)^2=225$$
$$P(-12,-13)$$

A Inside the circle

B Outside the circle

C On the circumference

**4** The circle has centre $C$ and passes through $A$. Where is $P$ relative to the circle?

$$C(4,2),\quad A(10,-6)$$
$$P(-2,-6)$$

A Outside the circle

B On the circumference

C Inside the circle

**5** Find the centre of the circle with diameter $AB$.

$$A(-2,-4)$$
$$B(6,2)$$

A $C=(4,-2)$

B $C=(-2,1)$

C $C=(-2,-4)$

D $C=(2,-1)$

**6** Find the equation of the perpendicular bisector of chord $AB$.

$$A(0,0)$$
$$B(4,4)$$

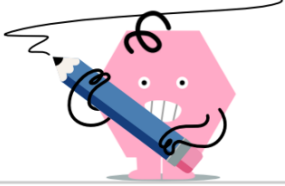
A $y=x$

B $y=-x+4$

C $y=-x$

D $y=-x+8$

Name



# Circles - Analytical Geometry - Intro

**7** Find the centre of the circle through $A$, $B$, and $D$.

$A(-16,-23)$
$B(20,-23)$
$D(2,31)$

A $C=(2,-23)$

B $C=(2,31)$

C $C=(2,1)$

D $C=(20,1)$

**8** Find the centre of the circle through $A$, $B$, and $D$.

$A(8,10)$
$B(-6,8)$
$D(10,-4)$

A $C=(2,2)$

B $C=(10,-4)$

C $C=(8,2)$

D $C=(2,8)$

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

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

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

**10** Find the equation of the circle with diameter $AB$.

$A(3,-4)$
$B(9,4)$

A $(x-3)^2+(y+4)^2=25$

B $(x+6)^2+y^2=25$

C $(x-6)^2+y^2=100$

D $(x-6)^2+y^2=25$

Name

# Circles - Analytical Geometry - Intro

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

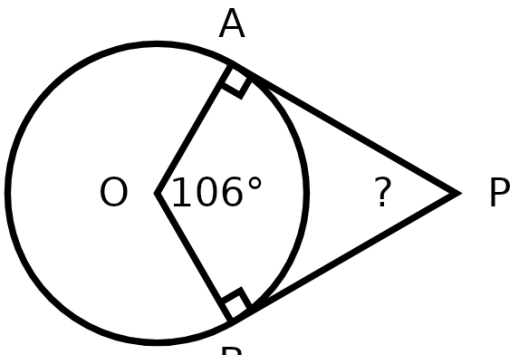



Diagram not to scale

A $127°$

B $37°$

C $74°$

D $106°$

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

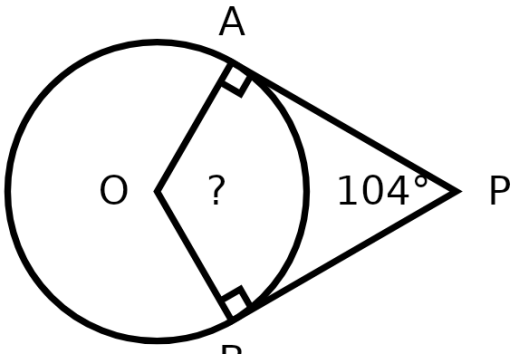



Diagram not to scale

A $128°$

B $104°$

C $76°$

D $38°$

Name

# Circles - Analytical Geometry - Intro

**13** Is line $TP$ tangent to the circle at $T$? Use the lengths shown.

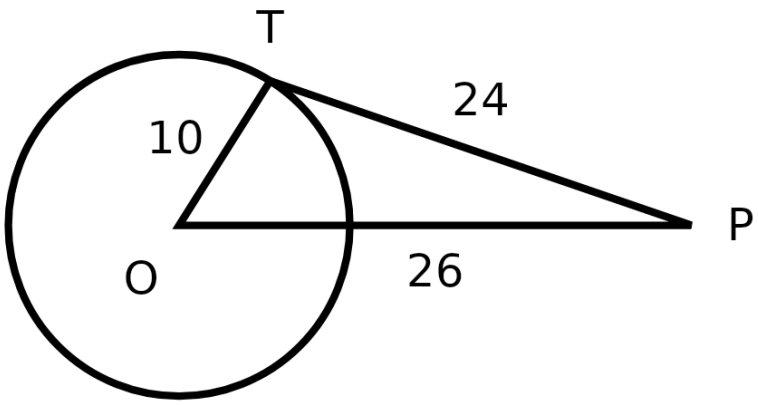



Diagram not to scale

A
Yes

B
No

**14** Find the slope of the tangent at $P$.

$$x^2 + y^2 = 41$$
$$P(5, 4)$$

| | |
|---|---|
| A $\frac{5}{4}$ | B $0$ |
| C $\frac{4}{5}$ | D $-\frac{5}{4}$ |

**15** Find the slope of the tangent at $P$.

$$(x-7)^2 + (y-2)^2 = 52$$
$$P(11, -4)$$

| | |
|---|---|
| A $0$ | B $-\frac{3}{2}$ |
| C $-\frac{2}{3}$ | D $\frac{2}{3}$ |

**16** Find the equation of the tangent at $P$.

$$(x-7)^2 + y^2 = 16$$
$$P(7, 4)$$

| | |
|---|---|
| A $y = -4$ | B $y = 0$ |
| C $y = 4$ | D $x = 7$ |

**17** 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 | $k = -33$ |
| B | $k = 47$ |
| C | $k = 11$ |
| D | $k = 87$ |