Equation of a Tangent

SCAN ME

REVISE THIS TOPIC

CHECK YOUR ANSWERS

SCAN ME

1 A circle has equation $x^2 + y^2 = 20$

The point P lies on the circle.
The coordinates of P are (2, 4)

The line **L** is tangent to the circle at point P.

Find an equation of **L**.
Give your answer in the form $y = mx + c$

.....

(Total for Question 1 is 4 marks)

1st

2 A circle has equation $x^2 + y^2 = 90$

The point P lies on the circle.
The coordinates of P are $(9, 3)$

The line **L** is tangent to the circle at point P.

Find an equation of **L**.
Give your answer in the form $y = mx + c$

.....

(Total for Question 2 is 4 marks)

3 A circle has equation $x^2 + y^2 = 29$

The point P lies on the circle.
The coordinates of P are $(2, 5)$

The line **L** is tangent to the circle at point P.

Find an equation of **L**.
Give your answer in the form $y = mx + c$

.....

(Total for Question 3 is 4 marks)

4 A circle has equation $x^2 + y^2 = 17$

The point P lies on the circle.
The coordinates of P are (1, -4)

The line **L** is tangent to the circle at point P.

Find an equation of **L**.
Give your answer in the form $y = mx + c$

.....

(Total for Question 4 is 4 marks)

Solutions

5 A circle has equation $x^2 + y^2 = 34$

The point P lies on the circle.
The coordinates of P are (-3, 5)

The line **L** is tangent to the circle at point P.

Find an equation of **L**.
Give your answer in the form $y = mx + c$

.....

(Total for Question 5 is 4 marks)

Solutions

6 A circle has equation $x^2 + y^2 = 65$

The point P lies on the circle.
The coordinates of P are $(7, k)$, where $k < 0$

The line **L** is tangent to the circle at point P.

Find an equation of **L**.
Give your answer in the form $y = mx + c$

.....

(Total for Question 6 is 5 marks)

7 A circle has equation $x^2 + y^2 = 117$

The point P lies on the circle.
The coordinates of P are $(9, k)$, where $k > 0$

The line **L** is tangent to the circle at point P.

Find an equation of **L**.
Give your answer in the form $y = mx + c$

.....

(Total for Question 7 is 5 marks)

8 A circle has equation $x^2 + y^2 = 22.25$

The point P lies on the circle.
The coordinates of P are $(-4, k)$, where $k < 0$

The line **L** is tangent to the circle at point P.

Find an equation of **L**.
Give your answer in the form $ay + bx + c = 0$ where a, b and c are integers.

.....

(Total for Question 8 is 6 marks)

9 A circle has equation $x^2 + y^2 = 13$

The point P lies on the circle.
The coordinates of P are $(2, 3)$

The line **L** is tangent to the circle at point P.
The line **L** crosses the x-axis at the point Q.

Work out the coordinates of the point Q.

(.....,.....)

(Total for Question 9 is 5 marks)

10 A circle has equation $x^2 + y^2 = 212$

The point P lies on the circle.
The coordinates of P are (14, -4)

The line **L** is tangent to the circle at point P.
The line **L** crosses the y-axis at the point A.

Work out the coordinates of the point A.

(.....,.....)

(Total for Question 10 is 5 marks)

11 A circle has equation $x^2 + y^2 = 90$

The point P lies on the circle.
The coordinates of P are $(3, 9)$

The line **L** is tangent to the circle at point P.
The line **L** crosses the y-axis at the point A and the x-axis at the point B.

Work out the area of triangle AOB.

..... units^2

(Total for Question 11 is 6 marks)

12 A circle has equation $x^2 + y^2 = 320$

The point P lies on the circle.
The coordinates of P are (-8, 16)

The line **L** is tangent to the circle at point P.
The line **L** crosses the x-axis at the point A and the y-axis at the point B.

Work out the length of AB.
Give your answer in the form $a\sqrt{5}$ where a is an integer.

..... units

(Total for Question 12 is 6 marks)

13 A circle has equation $x^2 + y^2 = 29$

The point P lies on the circle.
The coordinates of P are $(5, 2)$

The line **L** is tangent to the circle at point P.
The line **L** crosses the y-axis at the point A and the x-axis at the point B.

Work out the length of AB.
Give your answer to 4 significant figures.

..... units

(Total for Question 13 is 6 marks)

14 A circle has equation $x^2 + y^2 = 48$

The point P lies on the circle.
The coordinates of P are $(\sqrt{12}, 6)$

The line **L** is tangent to the circle at point P.
The line **L** crosses the y-axis at the point A.

Show that the length of AP is an integer.

(Total for Question 14 is 6 marks)

15 A circle has equation $x^2 + y^2 = 25$

The point P lies on the circle.
The coordinates of P are $(\sqrt{5}, \sqrt{20})$

The line **L** is tangent to the circle at point P.
The line **L** crosses the x-axis at the point A.

Work out the area of triangle AOP.

..... units^2

(Total for Question 15 is 6 marks)

Solutions