EQUATION OF CIRCLE

Pearson Edexcel – Thursday 4 June 2020 - Paper 2 (Calculator) Higher Tier

1.

22 **C** is a circle with centre the origin.

A tangent to **C** passes through the points (−20, 0) and (0, 10)
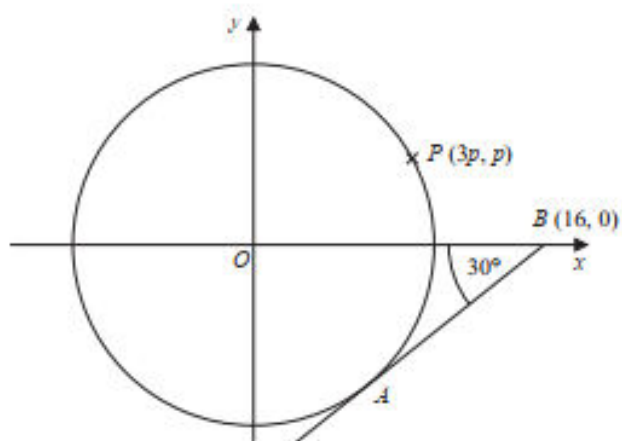
Work out an equation of **C**.
You must show all your working.

(Total for Question 22 is 5 marks)

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Higher Tier

2.

22 The diagram shows a circle, centre O.

AB is the tangent to the circle at the point A.
Angle $OBA = 30°$

Point B has coordinates $(16, 0)$
Point P has coordinates $(3p, p)$

Find the value of p.
Give your answer correct to 1 decimal place.
You must show all your working.

$p = $ ....

(Total for Question 22 is 4 marks)

Pearson Edexcel - Thursday 8 November 2018 - Paper 2 (Calculator) Higher Tier

3.
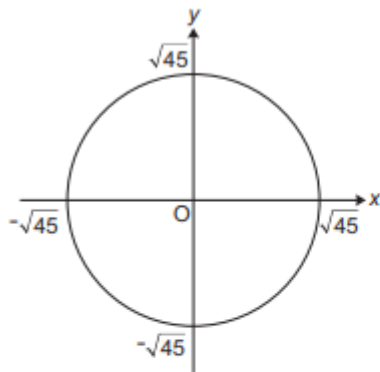
15 The equation of a circle is $x^2 + y^2 = 42.25$

Find the radius of the circle.

....

(Total for Question 15 is 1 mark)

18 Here is a sketch of the circle $x^2 + y^2 = 45$.

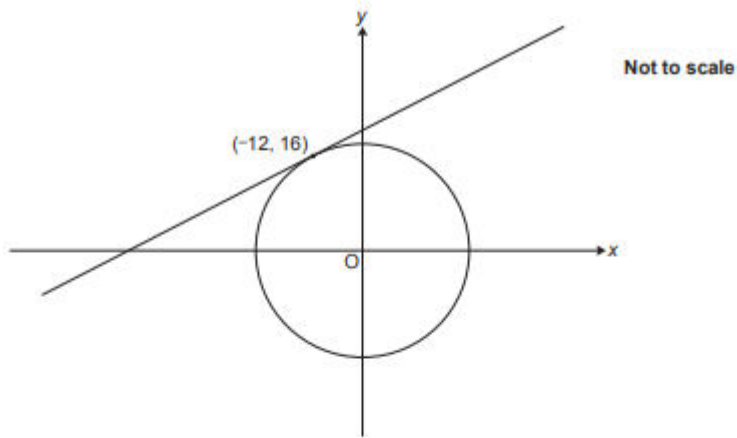**(a)** Show that the tangent to this circle at the point (⁻3, 6) has a gradient of $\frac{1}{2}$. **[2]**

(b) Find the equation of the tangent at the point (⁻3, 6).

(b) .... **[2]**

5.

14 The diagram shows a circle with centre (0, 0) and a tangent at the point (−12, 16).

The tangent crosses the *y*-axis at the point (0, *p*).

Find the value of *p*.

p = ... **[5]**

21 In this question all units are in cm.

A circle has equation $x^2 + y^2 = 36$.

(a) Write down the radius and centre of the circle.

(a) radius: .... cm

centre: (..........................., ...) **[2]**

(b) The distinct points A (a, $\sqrt{11}$) and B (b, $\sqrt{11}$) lie on the circumference of the circle.

Work out the length AB.

7.

19 The point $(-5, 2)$ lies on the circumference of a circle, centre $(0, 0)$.

   (a) Find the equation of the circle.

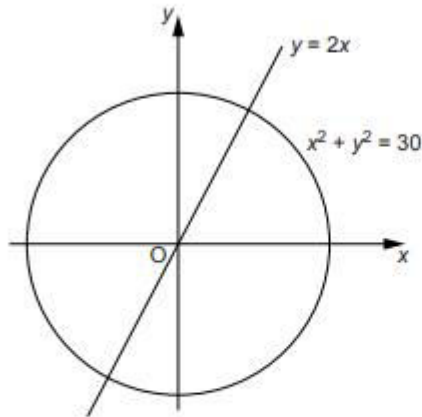   (a) .... [4]

   (b) Work out the gradient of the tangent to the circle at $(-5, 2)$.

                                                         (b) .... [2]

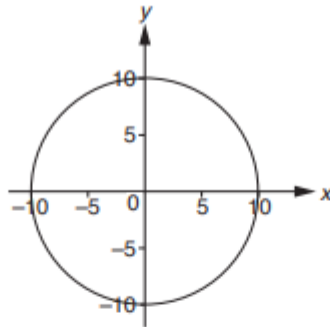**17** Find the exact coordinates of the two intersections of the line $y = 2x$ and the circle $x^2 + y^2 = 30$.

Not to scale

(.............. , ...) and (.............. , ...) **[5]**

9.

17 The diagram shows a circle, centre the origin.

(a) Write down the equation of the circle.

(a) .... [1]

(b) Point P has coordinates (8, –6).
Show that point P lies on the circle. [2]

(c) Find the equation of the tangent to the circle at point P.

(c) .... [5]

10.

25 The equation of a circle is $x^2 + y^2 = 9$

Work out the length of the **diameter**.
Circle your answer.

[1 mark]

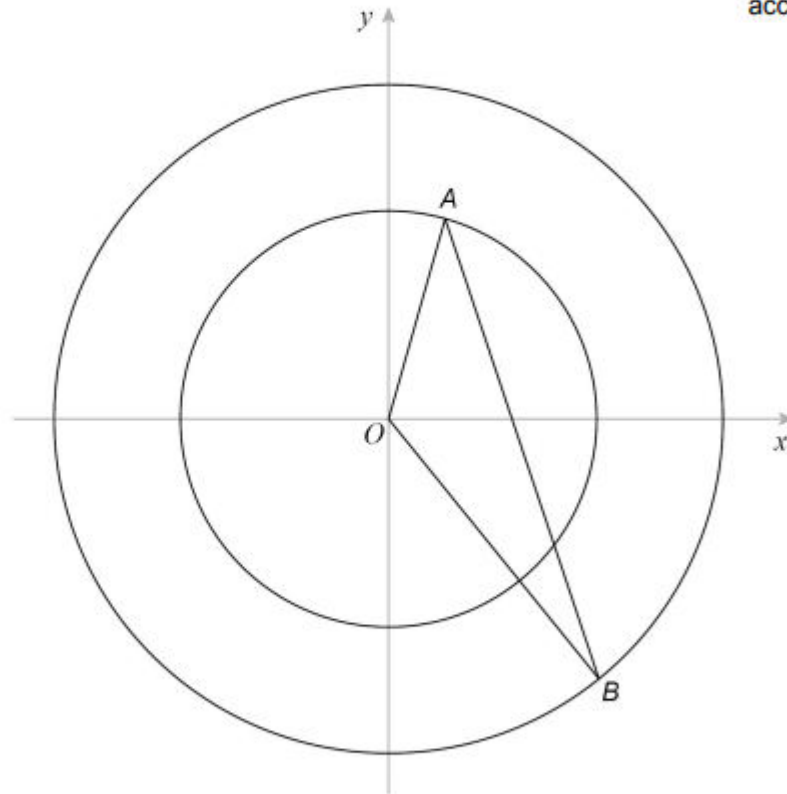   3   6   9   18

27   In this question, all lengths are in centimetres.

         A is a point on a circle, centre O.

         B is a point on a different circle, centre O.

         $AB = 20$

Not drawn accurately

The equation of the larger circle is $x^2 + y^2 = 144$

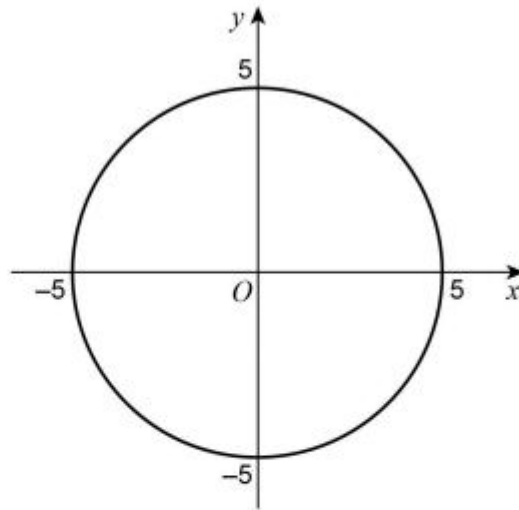radius of smaller circle : radius of larger circle $= 4 : 5$

Work out the size of angle *AOB*.

[5 marks]

Answer _____ degrees

12.

22   A circle, centre O, passes through $(5, 0)$.

What is the equation of the circle?

Circle your answer.

[1 mark]
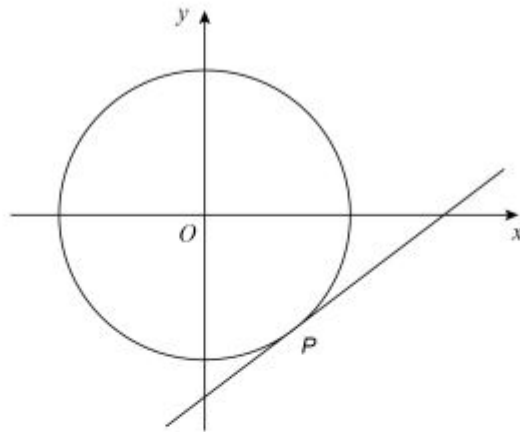
$x^2 + y^2 = 25$ $x^2 + y^2 = 5$ $x^2 + y^2 = 10$ $x^2 + y^2 = 100$

28 P is a point on the circle with equation $x^2 + y^2 = 80$

P has x-coordinate 4 and is below the x-axis.

Not drawn
accurately

Work out the equation of the tangent to the circle at P.

[5 marks]

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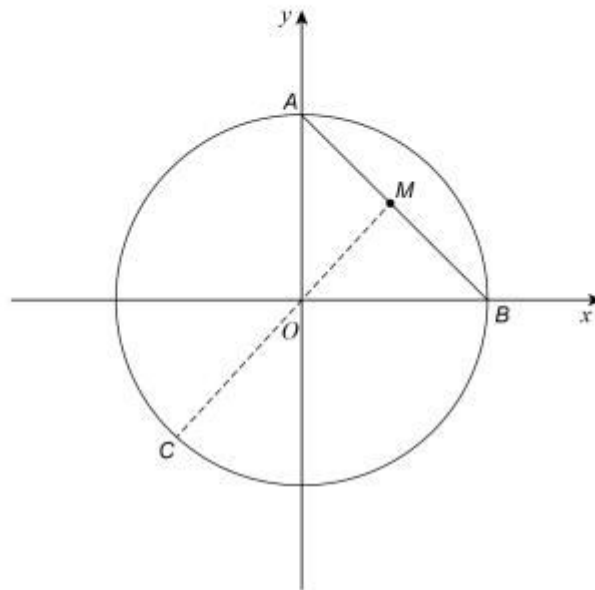Answer _____

28   A, B and C are points on the circle $x^2 + y^2 = 36$ as shown.

   A is on the y-axis.
   B is on the x-axis.
   M is the midpoint of AB.
   COM is a straight line.

28 (a)   Show that the coordinates of A are (0, 6)

[1 mark]

_____

_____

28 (b)   Work out the coordinates of B.

[1 mark]

_____

_____

   Answer (_____ , _____)

28 (c) Show that the equation of the straight line passing through *C*, *O* and *M* is $y = x$

[2 marks]

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_____

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28 (d) Work out the coordinates of *C*.
Give your answers in surd form.

[3 marks]

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Answer (_____ , _____)

AQA GSCE – Wednesday 25 May 2017 – Paper 1 (Non - Calculator) Higher Tier

15.

20   Work out the diameter of the circle $x^2 + y^2 = 64$
Circle your answer.

[1 mark]

8   16   32   128

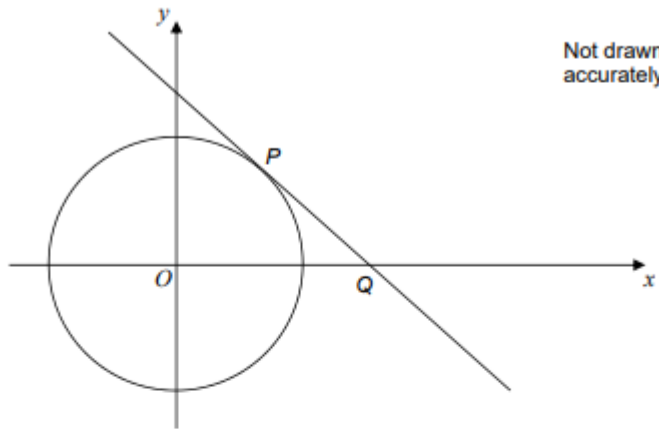**AQA GSCE – Sample Paper 1 (Non - Calculator) Higher Tier**

16.

28 The diagram shows the circle $\quad x^2 + y^2 = 10$

P lies on the circle and has x-coordinate 1

The tangent at P intersects the x-axis at Q.

Not drawn accurately

Work out the coordinates of Q.

[5 marks]

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Answer (_____ , _____)