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PURE MATH

ALGEBRA AND FUNCTION

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	CIRCLES - 1
PAPER TYPE:	QUESTION PAPER -1
TOTAL QUESTIONS	8
TOTAL MARKS	5 4

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Questions

Q1.

A circle C with centre at (-2, 6) passes through the point (10, 11).

(a) Show that the circle C also passes through the point (10, 1).

(3)

The tangent to the circle C at the point (10, 11) meets the y axis at the point P and the tangent to the circle C at the point (10, 1) meets the y axis at the point Q.

(b) Show that the distance PQ is 58 explaining your method clearly

(7)

(Total for question = 10 marks)

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Q2.

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Consider a right-angled triangle XYZ where X is the right angle, and the coordinates of points X and Z are (-3,4) and (5,-2) respectively.

(a) Determine the length of the hypotenuse *XY* of the triangle.

(3)

- (b) Find the equation of the perpendicular bisector of the hypotenuse XY.
 - (5)
- (c) Determine the coordinates of the circumcenter of triangle XYZ.

(2) (Total for question = 10 marks)



Q3.

Consider a quadrilateral ABCD in the coordinate plane with vertices A(2,3), B(7,8), C(4,-1) and D(-1,4). Show that ABCD is a parallelogram.

(5) (Total for question = 5 marks)

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Q4.

Consider a triangle PQR in the coordinate plane with vertices p(3,2), Q(8,4), and R(6,-1). Determine the lengths of the sides PQ, QR, and RP.

(3) (Total for question = 3 marks)

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Q5.

Consider a triangle PQR in the coordinate plane with vertices p(3,2), Q(8,4), and R(6,-1). Find the equations of the medians PM, QN and RO where M, N, and O are the midpoints of QR, RP, and RP respectively.

(5) (Total for question = 9 marks)



Q6.

Consider a quadrilateral ABCD in the coordinate plane with vertices A(2,3), B(7,8), C(4,-1) and D(-1,4). Determine the length of the perpendicular from point B to line AC.

(5)

(Total for question = 5 marks)

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Q7.

Consider a circle C with center O and radius r, where O(-3,5) Point A(4,2) lies on the circle.

(a) Find the equation of circle C.

(3)

(b) Determine the length of the radius r.

(4)

(Total for question = 7 marks)

Q8.

Consider a quadrilateral ABCD in the coordinate plane with vertices A(2,3), B(7,8), C(4,-1) and D(-1,4). Find the equation of the line containing the diagonal AC.

(5)

(Total for question = 5 marks)

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