

# CHEMISTRY ONLINE - TUITION 

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## PURE MATH

## ALGEBRA AND FUNCTION

| Level \& Board | EDEXCEL (A-LEVEL) |
| :--- | :--- |
| TOPIC: |  |
|  | CIRCLES - 1 |
| PAPER TYPE: |  |
|  | QUESTION PAPER -1 |
| TOTAL QUESTIONS | $\mathbf{8}$ |
| TOTAL MARKS | 54 |

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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
(a) Determine the length of the hypotenuse $X Y$ of the triangle.
(b) Find the equation of the perpendicular bisector of the hypotenuse XY.
(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 $A(2,3), \quad B(7,8), \quad \mathrm{C}(4,-1)$ and $\mathrm{D}(-1,4)$. Show that ABCD is a parallelogram.
(Total for question = 5 marks)

## Q4.

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

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

Q6.
Consider a quadrilateral ABCD in the coordinate plane with vertices $A(2,3), \quad B(7,8), \quad C(4,-1)$ and $\quad D(-1,4)$. Determine the length of the perpendicular from point B to line AC .
(5)
(Total for question = 5 marks)

Q7.
Consider a circle $C$ with center $O$ and radius r, where $\mathrm{O}(-3,5)$ 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 $A(2,3), \quad B(7,8), \quad \mathrm{C}(4,-1)$ and $\mathrm{D}(-1,4)$.
Find the equation of the line containing the diagonal AC.
(5)
(Total for question = 5 marks)


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