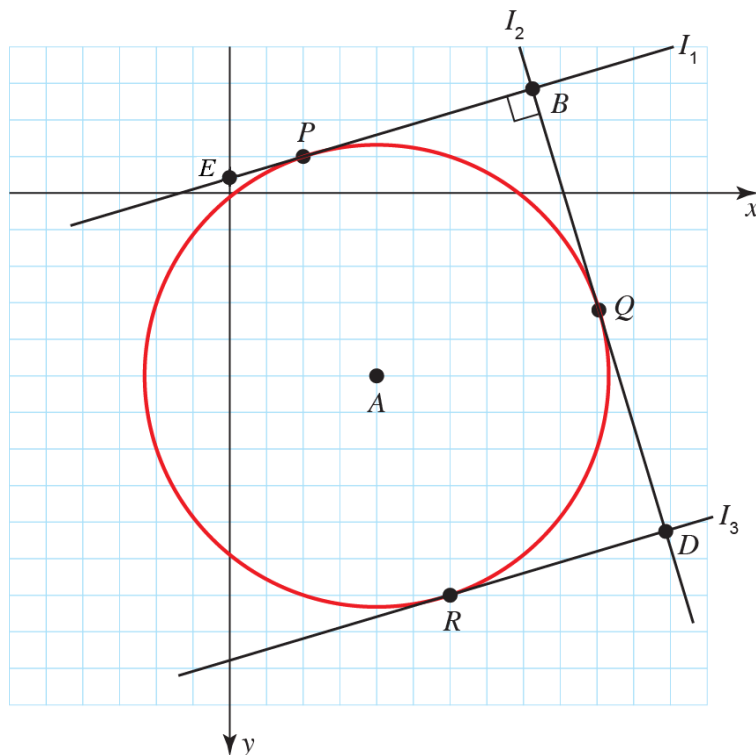


Introduction to A Level Maths Taster Question

A is the centre of circle C , with equation $x^2 - 8x + y^2 + 10y + 1 = 0$

P , Q and R are points on the circle and the lines l_1 , l_2 and l_3 are tangents to the circle at these points respectively. Line l_2 intersects line l_1 at B and line l_3 at D .

Figure 1



- a Find the centre and radius of C . (3 marks)
 - b Given that the x -coordinate of Q is 10 and that the gradient of AQ is positive, find the y -coordinate of Q , explaining your solution. (4 marks)
 - c Find the equation of l_2 , giving your answer in the form $y = mx + b$. (4 marks)
 - d Given that $APBQ$ is a square, find the equation of l_1 in the form $y = mx + b$. (4 marks)
- l_1 intercepts the y -axis at E .
- e Find the area of triangle EPA . (4 marks)