

Higher Maths  
SQA 2016 Paper 1  
Question 8



---

Show that the line with equation  $y = 3x - 5$  is a tangent to the circle with equation  $x^2 + y^2 + 2x - 4y - 5 = 0$  and find the coordinates of the point of contact.

5

---

Answer:

Solve the equations simultaneously by substituting the straight line equation into the equation for the circle and simplifying. Prove that there is only one point of contact by either solving the quadratic equation or verifying that the discriminant equals 0. Point of contact: (2, 1).