

Core 1

Coordinate Geometry

Section 2: Curves and circles

Exercise B

- Find the coordinates of the points where the following lines and parabolas intersect.
 - $y = 3x + 1$ and $y = x^2 - 4x + 7$
 - $y = x - 2$ and $y = x^2 + 2x - 8$
- Show that the line $y = 4 - x$ is a tangent to the circle $x^2 + y^2 = 8$.
 - Show that the line $4y = 3x - 25$ is a tangent to the circle $x^2 + y^2 = 25$.
- The line $2y + x = 10$ meets the circle $x^2 + y^2 = 65$ at P and Q.
Calculate the length of PQ.
- A circle has points P (-2, 6) and Q (6, 0) as ends of a diameter.
 - Calculate the equation of the circle.
 - The line $7y = x + 44$ passes through P and meets the circle again at R.
Find the coordinates of R.
 - Find the equation of the line QR.
 - Use the equations of PR and QR to show that $\angle PRQ$ is 90° .
- Write down the equation of the circle centre (0, 0) and radius $\sqrt{17}$.
 - Show that the point P(-4, -1) lies on the circle.
 - Find the equation of the tangent at P.
 - The line $x + y = 3$ meets the circle at two points, Q and R.
Find the coordinates of Q and R.
 - Find the coordinates of the point, S, where the tangent at P intersects the line $x + y = 3$.
 - Show that $SR \times SQ = SP^2$.