



QUESTION WORKBOOK

Circles

Coordinate geometry · Year 12–13

7 questions · 20 marks

PRINT EDITION

SECTION A · Warm-up

A1 Write down the equation of the circle with centre $(2, -3)$ and radius 4. [2]

A2 Write down the centre and radius of the circle $(x + 1)^2 + (y - 5)^2 = 49$. [2]

SECTION B · Standard

B1 Find the centre and radius of the circle $x^2 + y^2 - 4x + 6y - 3 = 0$. [3]

B2 Determine whether the point $(5, 1)$ lies inside, on, or outside the circle $(x - 2)^2 + (y + 3)^2 = 16$. [3]

- B3** Find the equation of the tangent to the circle $(x - 1)^2 + (y - 2)^2 = 25$ at the point $(4, 6)$, giving your answer in the form $ax + by + c = 0$. [4]

- B4** A chord of a circle of radius 5 passes at perpendicular distance 3 from the centre. Find the length of the chord. [3]

SECTION C · Stretch

- C1** $A(-5, 0)$ and $B(5, 0)$ are the ends of a diameter of the circle $x^2 + y^2 = 25$, and C is the point $(3, 4)$. Show that C lies on the circle, and verify that angle ACB is a right angle. [3]