InkMaths

QUESTION WORKBOOK

Circles

Coordinate geometry · Year 12-13

7 questions · 22 marks

PRINT EDITION

inkphysics.co.uk/maths/ · youtube.com/@InkPhysics

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 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]

B3 A chord of a circle of radius 5 cm lies at perpendicular distance 3 cm from the centre. Find the length of the chord. [2]

SECTION C · Stretch

C1 The line $y = 2x - 3$ meets the circle $x^2 + y^2 - 6x + 4y - 12 = 0$ at the points A and B. Find the coordinates of A and B. [5]

C2 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. [4]