



QUESTION WORKBOOK

Parametric equations

Coordinate geometry · Year 12–13

7 questions · 23 marks

PRINT EDITION

SECTION A · Warm-up

- A1** A curve has parametric equations $x = t^2 + 1$, $y = 2t - 1$. Find the coordinates of the point where $t = 2$. [2]

- A2** Find the Cartesian equation of the curve $x = t - 3$, $y = t^2$. [2]

SECTION B · Standard

- B1** A curve has parametric equations $x = 2t$, $y = 12/t$ for $t \neq 0$. Find its Cartesian equation, and name the type of curve. [3]

- B2** The curve C has parametric equations $x = 5 \cos t$, $y = 5 \sin t$ for $0 \leq t \leq \pi$. Find the Cartesian equation of C , and state precisely which part of that Cartesian curve C is. [4]

B3 Find the Cartesian equation of the curve $x = 4 \cos t$, $y = 3 \sin t$. [3]

SECTION C · Stretch

C1 The curve C has parametric equations $x = t^2$, $y = t^6$. Find its Cartesian equation, and explain why C is only part of the curve that equation describes. [3]

C2 A ball's flight is modelled by $x = 20t$, $y = 15t - 5t^2$, with x and y in metres and t in seconds from launch. Find when the ball lands, how far away it lands, and the greatest height it reaches. [6]