



QUESTION WORKBOOK

Definite integrals and areas

Integration · Year 12–13

7 questions · 20 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

A1 Evaluate $\int_0^2 x^3 \, dx$. [2]

A2 Evaluate $\int_1^4 (2x + 1) \, dx$. [2]

SECTION B · Standard

B1 Find the area enclosed between the curve $y = 6x - x^2$ and the x-axis. [3]

B2 Find the total area enclosed between the curve $y = x(x - 2)$ and the x-axis from $x = 0$ to $x = 3$. [4]

B3 Using algebra, find the exact value of $\int_1^4 (x^2 + 3)/\sqrt{x} \, dx$. [4]

SECTION C · Stretch

C1 Evaluate $\int_{-2}^2 x^3 \, dx$, and explain the answer geometrically. [2]

C2 For the same curve and limits, find the total shaded area between the curve and the axis. [3]