



QUESTION WORKBOOK

Integration as antidifferentiation

Integration · Year 12–13

7 questions · 23 marks

PRINT EDITION

SECTION A · Warm-up

A1 Find $\int (3x^2 - 2x + 5) \, dx$. [2]

A2 Explain why every indefinite integral carries a $+ c$. [2]

SECTION B · Standard

B1 Find $\int (6x^5 - 3/x^2) \, dx$. [3]

B2 Find $\int (2\sqrt{x} + 1/\sqrt{x}) \, dx$. [3]

- B3** A curve passes through the point $(2, 5)$ and satisfies $dy/dx = 3x^2 - 2$. Find an equation for the curve. [4]

SECTION C · Stretch

- C1** Show that $(x^2 + 1)^3/6 + c$ is not an integral of $(x^2 + 1)^2$. [3]

- C2** Given that $d^2y/dx^2 = 6x - 4$, that $dy/dx = 5$ when $x = 1$, and that $y = 4$ when $x = 2$, find y in terms of x . [6]