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QUESTION WORKBOOK

# Integration as antidifferentiation

Integration · Year 12–13

7 questions · 20 marks

PRINT EDITION

**SECTION A** · Warm-up

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

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

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**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 has  $dy/dx = 3x^2 - 2$  and passes through  $(2, 5)$ . Find its equation. [4]

**B4** Verify by differentiation that  $x^6 + 3/x + c$  is the integral found in the earlier question. [3]

### SECTION C · Stretch

**C1** Find  $\int (x^2 + 1)^2 dx$ . [3]