



QUESTION WORKBOOK

Differentiating powers of x

Differentiation · Year 12–13

7 questions · 20 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

A1 Differentiate $y = x^5 - 3x^2 + 7$. [2]

A2 Differentiate $y = \sqrt{x}$, giving your answer without fractional indices. [2]

SECTION B · Standard

B1 Differentiate $y = 4x^3 - 2/x$. [3]

B2 Differentiate $y = 6\sqrt{x} + 3/x^2 - 5x$. [4]

B3 Differentiate $y = x^2(x^3 - 4)$. [3]

B4 Differentiate $y = (2x^3 - 5x)/x^2$. [3]

SECTION C · Stretch

C1 For the curve $y = x^3 - 3x$, find the gradient at $x = 2$, and the values of x at which the gradient is zero. [3]